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NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

**THE WAR THAT NEVER HAPPENED: THE SHARING OF
EUPHRATES – TIGRIS RIVERS' WATER BETWEEN
TURKEY, SYRIA AND IRAQ**

by

Mehmet Yilmaz

June 2003

Thesis Advisor:
Second Reader:

T.V. Paul
James Russel

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**THE WAR THAT NEVER HAPPENED: THE SHARING OF EUPHRATES –
TIGRIS RIVERS' WATER BETWEEN TURKEY, SYRIA AND IRAQ**

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Submitted in partial fulfillment of the
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MASTER OF ARTS IN NATIONAL SECURITY AFFAIRS

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ABSTRACT

Most recent studies and reports indicate that there is a significant risk of conflict over water sharing in the Middle East because of scarcity. Apart from exaggerating the scarcity of water resources and the likelihood of war, the major flaw of these assessments is that they just identify and do not solve the problem of water scarcity. The idea that water scarcity is the main source of conflict in the region is too narrow. Because water is so essential to life, even hostile coriparians have historically sought to compromise rather go to war over this resource, even as disputes have raged on other issues. The historical record is predominantly cooperation rather than conflict when it comes to water sharing.

This thesis provides a clear description of why water scarcity has not caused a violent conflict between Turkey, Syria and Iraq in the Euphrates-Tigris River Basin.

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I. THESIS INTRODUCTION

Over the past twenty years, much has been written about the impending water wars that can be expected in semi-arid and arid regions across the globe. It was made popular by former UN Secretary - General Boutros Ghali's statement that: "The next war in the Middle East will not be over politics but over water."¹ Precisely because water is so essential to life, even hostile co-riparian countries have historically sought to compromise rather go to war over water, even as disputes have raged on other issues.² Indeed, the historical record is predominantly one of water acting as a catalyst for cooperation rather than conflict. At the local and international levels, the vast majority of societies have sought to evolve subtle, often-unwritten, rules for collaboratively managing shared water resources for the common good.³

The countries of the Euphrates-Tigris basin provides an excellent example for this phenomenon. The conflicts about the use of the water resources in the Euphrates-Tigris basin began in the early 1960s with large-scale Turkish and Syrian irrigation and hydropower projects on the Euphrates, and to a lesser extent on the Tigris River. Since the early 1960s, there have been many important crises in this region over water between these riparian countries. As a result, in 1992, a Pentagon report named a water war between Syria and Turkey as one of the first contingencies.⁴ By contrast, some writers

¹ Anthony Turton, Shomenthree Moodley and Richard Meissner, "An Analysis of the Role of Virtual Water in Southern Africa in Meeting Water Scarcity: An Applied Research and Capacity Building Project." [http://www.up.ac.za/academic/libarts/polsci/awiru/vw_study_ch3.html]. December 2002.

² Aaron Wolf, "Development and Transboundary Waters: Obstacles and Opportunities." [<http://www.dams.org>]. December 2002.

³ Aaron Wolf, "Indigenous Approaches to Water Conflict Negotiations and Implications for International Waters." [<http://www.transboundarywaters.orst.edu/documents/indigenous>]. December 2002.

⁴ Mostafa Dolatyar and Tim S. Gray, *Water Politics in the Middle East: A Context for Conflict or Cooperation?* (New York: ST. Martin's Press, 2000), p. 116.

such as Peter Gleick, argue that, “the need to manage jointly the shared water resources of the region may provide an unprecedented opportunity to move toward an era of cooperation and peace.”⁵

This thesis provides a description of why water scarcity has not caused a violent conflict between Turkey, Syria and Iraq in the Euphrates-Tigris River Basin; although water sharing is an endemic problem among these countries and many scholars expect a military conflict in the basin. I will argue along with Gleick that inevitability of conflict over hydro politics in this region is unconvincing for five main reasons:

First, in the Euphrates-Tigris basin, none of the riparian countries is facing an imminent water shortage. Some writers purposefully exaggerate the water scarcity that dictates the political behavior in the basin, because it serves each riparian country’s self-serving positioning in the future.

Second, the three riparian countries have initiated many projects to capture, store, and redirect freshwater resources to reduce their vulnerability to water scarcity. Additionally, these expensive vulnerable water projects increased the probability of cooperation in the basin. More importantly, the major water problems arise primarily from the mode of water allocation within states rather than from water allocation between states.

Third, the three riparian countries have been engaged in continuous technical consultations and political negotiations over water since the early 1960s. This demonstrates an effort to avoid water conflict. As a result, there are many treaties which

⁵ Ibid, p. 117.

have been signed by the three riparian countries that lessen the strength of water scarcity issue in the political arena.

Fourth, tensions in the region are caused by a variety of factors in addition to concerns about water scarcity. Water is not the sole problem between parties in the region.

Finally, there are some norms that countries follow while using the basin's water and when there is tension in the region. In fact, there have been acute tensions among the riparian countries however, they are due to a host of different variables rather than water scarcity (e.g., the Syrian support to Kurdish Terrorist Group (PKK). The analysis begins by answering the following questions:

1. What are the basis for the compelling claims of water as a source of conflict and cooperation?
2. Why is water sharing problematic in the Euphrates-Tigris River Basin between Turkey, Syria, and Iraq?
3. Why is water so important for each country?
4. What is the historical background of water usage in the basin?
5. Although there were many important crises in the basin related to water disputes, why haven't they caused a violent conflict?

Many chronic conflicts occur near rivers that are shared by different states and these conflicts threaten human life in some regions. Whether the historical record is predominantly of water acting as a catalyst for cooperation or conflict, the expectation that water scarcity will not cause a war is too optimistic. More important, an explanation

as to why a water conflict over the Euphrates-Tigris River Basin has not caused a violent conflict between Turkey, Iraq and Syria could provide a preemptive solution to potential crises—crises that could escalate to a war within the Euphrates-Tigris and other basins. Additionally, it can provide beneficial information while making some predictions about the conditions under which water scarcity can cause a war in this and other regions.

Chapter II presents the main alternative hypotheses on water conflict. The first hypothesis suggests that scarcity of water will be the key factor in any future conflict in this region. The second hypothesis accepts the idea of water as merely a contributing factor rather than the major source of any possible conflict. A third viewpoint proposes that water scarcity and its potential for conflict is a technical problem. Many engineers and economists believe that the problem can be solved technically. A fourth hypothesis suggests that the history of water disputes is one of cooperation, not conflict.

Chapter III investigates why water sharing is problematic in Euphrates-Tigris River Basin between Turkey, Syria, and Iraq and summarizes each riparian country's perspectives on the water conflict. Water sharing is problematic because of geographical and climatic conditions in the region, combined with the countries' increasing populations and level of economic development. Additionally, every major river in the basin crosses one or more international borders. The water environment in an upstream country has a direct effect on the nature of the river downstream, and vice versa. By contrast, the total amount of water planned to be used by the riparian countries exceeds the total flow capacity of the rivers. The chapter will show that international law and international institutions do not establish a clear framework that can satisfy the water use needs of all riparian states. To resolve the region's conflicts and maintain stability, it

becomes the responsibility of the concerned countries to develop a corporate solution to their problems.

Economic, political, and ethnic concerns of each state at the domestic level, strategic concerns of the respective states, economic difficulties in the region, and the increasing need for energy dominate their security policies. They believe domestic political stability and economic advancement are more profitable than a basin-wide cooperation that will satisfy the demands of each riparian. It is this self-serving cost-benefit mindset that dictates the political behavior of the riparian states of the Euphrates-Tigris basin.

After explaining why water sharing is problematic in the basin and what each country's perspective over water conflict is, Chapter IV further explains why water disputes have not caused a violent conflict. This chapter clarifies the international water-related agreements which have been established since partition of the Euphrates-Tigris basin among the three parties. It shows some norms that Turkey, Syria, and Iraq have followed while using the basin's water. Chapter IV also explains other reasons for tension in the region and the projects that the three riparian countries have initiated to capture, store, and redirect the basin's fresh water. Chapter IV suggests that the three riparian countries are not facing an imminent water crisis.

Hydro politics gradually became a major international issue in Mesopotamia and the Middle East in 1960s. However, until 1975, neither the absence of integrated planning in the entire basin nor the lack of comprehensive agreement among three riparian countries on a water-sharing regime, led to any international friction among them,

because of the relative abundance of water in the basin which could satisfy all parties.⁶ The relative abundance of water in the basin did not, however, prevent the riparian countries of the basin from conducting some bilateral or trilateral negotiations. As a result, the three riparian parties facilitated a peaceful course of development in the region. This cooperative mode of conduct has often been overlooked by Western commentators who incline towards presenting conflict-oriented scenarios.⁷

Turkey and Iraq established the Joint Technical Committee to continue the efforts to reach a solution that would satisfy the needs of the riparian states in the basin in 1980. Syria entered this group in 1983, and this tripartite committee began its work on the basis of exchanging information about the two rivers. Turkey offered a “Three-Staged Plan for Optimum, Equitable, and Reasonable Utilization of the Basin.” In addition to this, in the mid-1980s, Turkish Prime Minister Turgut Ozal offered peace pipeline projects to Middle East countries that would transport water from two western Turkish rivers, the Seyhan and Ceyhan, southward to Syria, Jordan, Saudi Arabia, and the other Gulf States. Iraq and Syria have both perceived this proposal as an infringement in their domestic affairs. Furthermore, with the initiation of Turkey’s GAP⁸ Project in the mid-1980s, Syria and Iraq saw it as a threat to their economic and strategic goals. As a result, the three riparian countries started to give little importance to the Joint Technical Committee and its projects could never be initiated. Nevertheless, the role of the Joint Technical Committee should not be underestimated. Although its meetings are infrequent

⁶ Ibid, p. 131.

⁷ Ibid, p. 131.

⁸ Southeastern Anatolia Project (GAP, Turkish acronym). It is explained on page 82.

and appear to have made little substantive progress on the question of water sharing, it is a useful channel for communication.⁹

Relating to norms, the historical data basically proves that upper stream countries never wanted to make down stream countries suffer from water scarcity and always released as much water as they could. They did not use water as a political weapon.

The post-1984 period marked the escalation of the Kurdish problem and witnessed the internationalization of the Kurdish issue as Syria and Iran began to use the so-called “ethnic card.” The escalation of the water dispute clearly corresponds to the escalation of the Kurdish problem and the increasing use of "ethnic card" by Syria, and later by Iraq, as a bargaining chip. This suggests that the solution to the Kurdish problem is intrinsically linked to the resolution of the water dispute and that finding a solution to one without finding a solution to the other would be very difficult if not impossible. Water, however, is only one of the factors that causes problem in region between Turkey, Syria and Iraq.¹⁰ The other factors include territorial disputes (between Syria and Turkey) over Hatay, internal problems, the domestic political situation of each country, the Kurdish problem, and many other issues unrelated to water. Therefore, the lack of cooperation between the riparian countries in their hydro politics policies is not a result of water shortages in the region.¹¹

The overall process of water resources development in the basin during the last three decades has been in accordance with previous agreements signed by the three

⁹ Natasha Beschoner, *Water and Instability in the Middle East*, Adelphi Paper-273 (London: Brassey's, 1992), p.42.

¹⁰ Ibid, p.27.

¹¹ Dolatyar and Gray, *Water Politics in the Middle East*, p. 138.

riparian states in order to regulate the flow. The construction of enormous water storage capacity in Turkey, Syria, and Iraq has partially enhanced their sense of water security, while increasing the vulnerability to their expensive water projects. Additionally, “exploitation of water resources typically requires expensive—and vulnerable—civil engineering systems such as dams and pipelines. This creates a mutual hostage situation, which greatly reduces the incentives for states’ sources to employ violence to resolve conflicts. Furthermore, there is evidence that the development of water resources by antagonistic neighbors creates a network of common interest.”¹²

The annual discharge of the rivers has been more than enough for three riparian countries needs. They have purposefully exaggerated the water scarcity that dictates the political behaviors related to the basin, however, because each riparian country has a self-serving, cost-benefit mindset regarding the future. Although the extreme seasonal and annual fluctuations of the twin rivers have always been a great challenge to parties, it has led them towards collective cooperation to solve their problems and control the water resources of the basin due to its abundance of water.

In addition to all of these, Mostafa Dolatyar and Tim S. Gray conclude that:

In the process of their diplomatic exchange, all parties have understood that the international water resources cannot be monopolized or subjected to the control of a single riparian state. This active, continuous, and critical interchange has also convinced them that cooperation over the water issue is not necessarily a zero-sum game, but could be a win-win situation in which all parties would gain from cooperation.¹³

In contrast to what is conventionally believed, water resources have not yet caused a military conflict in Euphrates-Tigris basin. The aim of this study is to establish

¹² Ibid, p. 20.

¹³ Ibid, p. 156.

that the conventional wisdom of “water war in Euphrates-Tigris River Basin” has become somewhat of an exaggeration by pessimistic commentators who seldom attempt to clarify precisely what water-related causes of conflict are and what they are not. In reality, since ancient times, parties in the basin have been forced to cooperate and coordinate their collective efforts to control the two rivers because of the hydrography of the rivers. Although, occasionally there were small water-related tensions between the three riparian countries, in all instances the three riparian countries found solutions that satisfied each of them.

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II. THE MAIN ALTERNATIVE HYPOTHESIS ABOUT CONFLICT AND COOPERATION ON WATER SHARING

A. INTRODUCTION

When we look at the earth from space, it is easy to understand why our planet is called a blue planet, since three fourths of the earth's surface is covered by water. However, 98% of this surface water is in the oceans and the remaining two percent comprises the fresh water supplies of the world. More shocking, 90% of this fresh water supply is either in poles or remains underground. Therefore, we humans actually have easy access to .000006% of water available.¹⁴

The distribution of fresh water resources around the world is uneven.¹⁵ Moreover, since the world is divided into many sovereign states, water stored in rivers or aquifers may pass from one state to another or may constitute boundaries between them thus making the water issue more problematic. The world has not faced a global water crisis, yet, but many chronic conflicts among common rivers, while sharing their water, threaten human life in some regions.

For instance, in late 1993, the CIA issued a report pinpointing ten regions around the world it believed would witness conflicts over water. Most of them were in the Middle East where water is blue gold because of its scarcity. Crises have already begun to emerge in the region between Turkey and Syria over the Tigris and Euphrates Rivers; in the Jordan River Basin between Israel, Palestine and Jordan; and among Egypt, Sudan and Ethiopia over the Nile River.

¹⁴ Salih Korkutan, *The Sources of Conflict in the Euphrates-Tigris Basin and Its Strategic Consequences in the Middle East*, Master's Thesis, Naval Post Graduate School, Monterey, California, June 2001. p. 1.

¹⁵ Ibid, p.1.

The idea that water scarcity is a primary source of conflict, however, is too narrow. Some of the important examples of water-related conflicts were a function of the relationships among social, political, and economic factors.¹⁶

B. LINK BETWEEN WATER AND CONFLICT AND COOPERATION:

Shrinking and deteriorating water reserves, increasing droughts together with rising water budgets that are hardly affordable are all clear signals of water crises facing humanity in different parts of the globe. While both quantity and quality of water are decreasing mainly because of population growth, agricultural needs, industrial requirements, and possible global warming, this situation creates increasing levels of relative scarcity over time. These facts suggest that growing problems on water issues need to be better understood if they are to be solved. As a result, the literature on water conflicts is very extensive, including many disciplines and many approaches.

Social scientists, economists, engineers, natural scientists and many others are now talking about the link between water and conflict or cooperation. Analyses by various scholars yielded confusing conclusions, varying from a threat of war over water, to potential for cooperation among the riparian nations.

The main argument of proponents of water scarcity conflicts is that as water becomes scarcer, countries that share international river basins could revert to violent conflict to secure more water since about 40% of the river basins in the world are shared among two or more nations. Although the scenarios about water generally involve conflicts, the other side of the coin is cooperation. In this chapter the two main

¹⁶ Environment, Development & Conflict (EDC News) Web page, "Water Conflict Databases." [<http://www.padrigu.gu.se/EDCNews/Research/WaterConflictDatabases.html>]. December 2002.

approaches of water scarcity—security and environmental—are identified. Additionally, the link between water scarcity and cooperation is explained.

Detailed discussion of these two approaches in this chapter leads to the conclusion that, since water plays a multifunctional role in shaping the national security calculations, economy, culture, religion, nutrition, health, and every other aspect of human life, the relationship between cause and effect of water scarcity conflicts as it has been assumed by many social scientists is questionable. Because of the lack of analytical precision, the concept of water conflict is ambiguously used in the literature by many social scientists that look at the issue from a narrow, militarized perspective.

Before explaining the two main approaches to water scarcity, it will be useful to explain of the term water scarcity and hydro politics. This will help to clarify the interaction between different actors in particular states on the external and internal water issues. Actual scarcity may be said to exist when real demand or need exceeds the real supply. As Anthony Turton, Shomenthree Moodley and Richard Meissner define:

Hydro politics is the systematic examination of the interaction between states, non-state entities and other relevant participants like individuals... within the national domain and international political milieu, regarding the authoritative allocation and/or use of international and national water resources like rivers, aquifers, lakes, glaciers, and wetlands.¹⁷

1. Water as a Security Issue:

A realist approach of world politics, which suggests a positive relationship between scarcity and conflict claims that resources have been central to international conflict throughout history, sometimes having a starring role but more frequently being

¹⁷ Turton, Moodley and Meissner, *An Analysis of the Role of Virtual Water in Southern Africa in Meeting Water Scarcity*.

pushed in to the background.¹⁸ Most of the military analysts claim that fresh water is similar in many respects to other of the world's scarce resources, while it is becoming increasingly a source of future conflict.

According to this approach, water is a source of power and water scarcity is a critical and highly strategic issue that affects the social and economic development of nations and, consequently, threatens to undermine their political power. Additionally, supporters of this approach predict that states are prepared to go to a war to ensure a steady supply of water for their present needs and future demands. For instance, while explaining whether environmental scarcity causes violent conflict, Thomas Homer-Dixon suggests that decreasing supplies of physically controllable environmental resources, such as clean water, would provoke interstate "simple-scarcity" conflicts.

Additionally, Homer-Dixon suggests that severe resources scarcity would simultaneously increase economic deprivation while categorizing the sources in two groups: (1) nonrenewable, like oil and iron ore, and (2) renewable, like fresh water and forests. He gives environmental change as one of the three sources of scarcity of renewable resources. The commonly used term environmental change refers to a human-induced decline in the quantity or quality of a renewable resource that occurs faster than it is renewed by natural processes.¹⁹ The others are population growth and unequal social distribution of resources.

According to Homer-Dixon, reduction in the quantity or quality of a resource shrinks the resource pie, while population growth divides the pie into smaller slices for

¹⁸ Chester Crocker and Fen Osler Hampson with Pamela Aall, eds., *Managing Global Chaos* (Washington, D.C.: United States Institute of Peace Press, 1996), p. 141.

¹⁹ Homer Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases." [<http://www.library.utoronto.ca/pcs/evidence/evid1.htm>]. December 2002.

each individual, and unequal resource distribution means that some groups get disproportionately large slices.²⁰ We must also recognize that resource scarcity is, in part, subjective; it is determined not just by absolute physical limits, but also by preferences, beliefs, and norms.²¹

Homer-Dixon's research suggests that the renewable resource most likely to stimulate interstate resource war is river water, since water is a critical resource for personal and national survival. Additionally, over the shared river basin, one country's access can be affected by another's actions. Downstream riparian countries often fear that their upstream neighbors will use water as a means of coercion. This situation can be dangerous and a source of violent conflict if the downstream country also believes that it is powerful enough to rectify the situation.

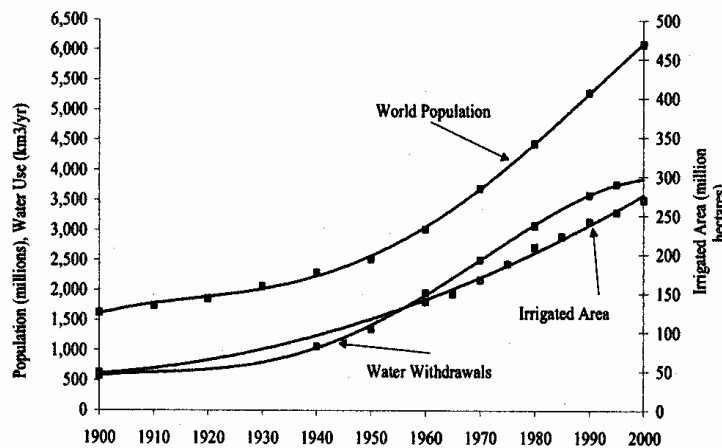
Similarly, Peter Gleick says that as water becomes scarcer, the likelihood will increase that water and water-supply systems will become more and more the source of violent conflict. In addition to climatic changes three major drivers will cause this: (1) population growth, (2) improved living standards, and (3) expansion of irrigated agriculture. All three factors have increased dramatically and have led to about a seven-fold increase in freshwater withdrawals as seen in Figure-1.²² Thus, shortages of water could contribute to tensions and violent conflict between and within states.

²⁰ Ibid.

²¹ Ibid.

²² Peter H. Gleick, "The Changing Water Paradigm, A Look at Twenty-first Century Water Resources Development." [<http://www.iwra.siu.edu/win/win2000/win03-00/gleick.pdf>]. December 2002.

Figure 123: World Population, Water Use, and Irrigated Areas



Water, from an economic point of view, also can be a reason for water-related conflicts. Recently the economic value of water has gained recognition in societies at various levels of development, since the importance of water as a national security issue relates its role to the prosperity of a nation.²⁴ On this issue, Anthony Turton says:

Water scarcity need not necessarily result in heated conflict and, in fact, can instead become the catalyst for increased cooperation. What really needs to be done is to empower this instrument to become one of peace and cooperation rather than one of conflict and division. How this is done depends on the way the respective role-players interact. In short, indications are that water scarcity need not necessarily become a limitation to economic growth and potential, provided that conflict can be effectively managed and that cooperation can be stimulated...²⁵

By contrast, Analysis by some scholars concluded that the water disputes result in cooperation, not conflict. For instance, Aaron Wolf says that the real story of water disputes is one of surprising cooperation in the long run, even among mortal enemies. In support of his thesis, Aaron Wolf has examined water treaties all over the globe going

²³ Ibid.

²⁴ Hussein Solomon, "From Cold War to Water Wars." http://www.euconflict.org/dev/ECCP/ECCP_Surveys_v0_10.nsf/wvSearchResults/31A6AB664AF9CEDCC1256B270037A4A8?OpenDocument&highlight=0,sadc. April 2003.

²⁵ Gina van Schalkwyk, "Multilateral Cooperation Around Shared Water Courses in the Southern African

back almost 5,000 years.²⁶ During his investigation, Wolf found one single war that was actually linked to a water resource conflict; there have been no further wars over water.²⁷

Additionally, countries cooperate not only for the management of this scarce resource, but also as an instrument to build and strengthen linkages between them. For example, on the Hungarian and Slovakian border, citizens on both sides of the river, in a region fraught with ethnic violence, came together to meet and discuss how to clean up the pollution, to manage the water and to reduce terrible health risks to themselves and their children.

There is little empirical support for the idea that environmental scarcity causes simple-scarcity conflicts between states. Scarcities of renewable resources such as fresh water do not often cause resource wars between states, because states fight more over non-renewable than renewable resources.²⁸

Why are states more war prone over non-renewable than renewable resources? First of all, non-renewable resources can be more directly converted into state power. Second, the very countries, which are most dependent on renewable resources, and which are therefore most motivated to seize resources from their neighbors, also tend to be poor, which lessens their capability for aggression.²⁹ Furthermore, although resource scarcity can aggravate existing conflicts and make them more acute, resource scarcity alone is not a determining factor for countries to go to war.

region.” [<http://www.student-pugwash.org/uk/vanSchalkwyk.pdf>]. December 2002.

²⁶ David Stauth, “History of Water Disputes is Cooperation, not Conflict.” [<http://www.orst.edu/Dept/ncs/nesarch/1998/oct98/water.htm>]. December 2002.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Ibid.

In their article, *Shared Rivers and Interstate Conflict*, Hans Petter Wollebaek, Nils Petter Gleditsch, and Havard Hegre argue that, while a strong case can be made that competition over water resources may exacerbate conflict and contribute to interstate violence, in fact its foundation is quite weak. The authors conclude that both the existence of a joint river and water scarcity are shown to be risk factors but these results are far from strong. Moreover, most of the historical examples indicate that not all water-resource disputes lead to violent conflict since everyone's vulnerability to interruption of water supply will make war less likely; indeed most lead to discussions, negotiations, mediations, and non-violent resolutions.

This argument has been briefly advanced by Daniel Deudney. According to Deudney, the development of jointly owned water resources will reinforce peace rather than conflict. He explains that:³⁰

Exploitation of water resources typically requires expensive – and vulnerable – civil engineering systems such as dams and pipelines. Large dams, like nuclear power plants, are potential weapons in the hands of an enemy. This creates a mutual hostage situation which greatly reduces the incentives for states to employ violence to resolve conflicts. Furthermore, there is evidence that the development of water resources by antagonistic neighbors creates a network of common interest.

There are economists, by contrast, who reject the alleged strategic importance of water as a unique resource and argue that water scarcity is basically an economic problem, which will be alleviated if nations treat water as an economic asset.³¹ According to supporters of this approach, a water problem is really an allocation problem and the problem of scarcity could be easily solved since there is enough water worldwide and

³⁰ Daniel Deudney, "Environment and Security: Muddle Thinking." [<http://www.thebulletin.org/issues/1991/a91/a91deudney.html>]. April 2003.

³¹ Dolatyar and Gray, *Water Politics in the Middle East*, p. 16.

people are willing to pay the cost. Thus, the solution lies in the application of the market mechanism.

Some scholars also see water as a technical issue, while optimistically maintaining faith in the ability of science, technology, and human ingenuity to accommodate the world's population demand for water. While drawing attention to supply-side inefficiencies, they suggest that there is enough water on the earth to satisfy everyone's water needs; the problem is whether appropriate technology is available to utilize this resource.³² They claim that a technological management of water resources together with the help of market mechanism can solve the water scarcity problem.

2. Water as an Environmental Issue:

The environmental approach relates the water crisis to wider environmental issues, while believing that the water crisis is part and parcel of the global environmental crisis that the earth is facing today. Environmentalists argue that the earth has finite resources and capacities, and these mortal sources place limits on our use of them while they are becoming scarcer. From this perspective, water scarcity is an environmental problem caused by our misguided conduct toward nature and our unsustainable policies for exploitation of this resource.

Although environmentalists claim that any resort to military, economic or technological solutions would not only fail to solve the problem, but would actually exacerbate it. The environmental approach to resource scarcity takes into account the security, economic and technical dimensions of the issue. For instance, water conflict in terms of environmental conflict is "caused by a human-sourced disturbance of the normal

³² Ibid, p. 41.

regeneration rate of a renewable resource”³³ and intensified competition for declining resources.

This is the main realist argument on the subject of hydro politics. The dynamic process of managing freshwater resources and human demands for water is changing everyday. A reliance on physical solutions continues to dominate traditional planning approaches. These solutions, however, are facing increasing opposition internally and externally especially among the common rivers. One country’s water project, such as building a dam to control the water, causes great tension since the other riparian countries see it as a threat to their economy, national security, and sovereignty. There is a lack of hard evidence to substantiate this realist view, because international relations over shared freshwater resources were overwhelmingly cooperative.³⁴

Water scarcity, as an environmental issue, should be looked at from the perspective of “environmental politics,” which is very different from the traditional perspective of “power politics.” Since environmental security is an alternative to the prevailing concept of national security, and strongly endorses collective solutions, it serves to shift policy-makers away from conventional realist positions based on protecting their narrowly defined national interests by the application of strong military capabilities.³⁵ This perspective turns the water scarcity issues into an opportunity for cooperation and a powerful inducement to promote peace.

³³ Roy Allison and Lena Johnson, eds., *Central Asian Security: The New International Context* (Washington, D.C. and London: Brookings Institution Press and the Royal Institute of International Affairs, 2001), p.69.

³⁴ Shira Yoffe, “Basins at Risk.” [http://www.transboundarywaters.orst.edu/projects/bar/BAR_chapter5.pdf]. December 2002.

³⁵ Dolatyar and Gray, *Water Politics in the Middle East*, p. 17.

In an ongoing effort to understand the connections between water resources and conflict, the Pacific Institute for Studies in Development, Environment and Security, under Peter Gleick's leadership, initiated a project in the late 1980s to track and categorize events related to water and conflict. Their categorization includes the following terms:

- *Control of Water Resources:* Water supplies or access to water is at the root of tensions.
- *Military Tool:* Water resources, or water systems themselves, are used by a nation or state as a weapon during a military action.
- *Political Tool:* Water resources, or water systems themselves, are used by a nation, state, or non-state actor to achieve a political goal.
- *Terrorism:* Water resources, or water systems, are either targets or tools of violence or coercion by non-state actors. This is a new definition and will be further clarified for the next version of the chronology in a new project on "Environmental Terrorism" at the Pacific Institute.
- *Military Target:* Water resource systems are targets of military actions by nations or states.
- *Development Disputes:* Water resources or systems are a major source of contention and dispute in the context of economic and social development.³⁶

This study's main argument is that water resources have rarely been the sole source of violent conflict or war.³⁷ After categorizing water related conflicts, as Gleick says, "It will be clear to even the casual reader that these definitions are imprecise and

³⁶ Peter Gleick, , "Environment and Security: Water Conflict Chronology." [<http://www.worldwater.org/conflictIntro.htm>]. December 2002.

that single events can fall into more than one category, depending on perceptions and definitions.”³⁸ For instance, military attacks on water supply systems can be categorized into (1) either targets or tolls, or both, (2) either political power disputes or disagreements over approaches to economic development, or both, and (3) can cause disputes over control of water resources. A portion of Gleick’s Water Chronology database is shown at Figure 2.³⁹ On the chart, “yes” means “violent conflict” while “no” means “no violent conflict.”

Figure 2:⁴⁰ Gleick’s Water Chronology

Analysis of Gleick's Water Chronology					
cases	yes	no	potential	military nanuevurs	total
control of water resources					
military Tool	13	2			15
political tool	2	2			4
military goal	1	1			2
terrorism					
military target	8				8
development disputes					
military and political tool, control of water resources				2	2
political tool, control of water resources, terrorism and development dispute	1				1
political tool, development dispute				2	2
military tool, military target	6				6
development disputes, control of water resources	1	2			3
development disputes, control of water resources, and political tool		1			1
political tool, military tool, development disputes	1				1
development dispute, military target, political tool	1				1
military tool, political tool, control of water resources	1				1
development dispute, military tool, political tool	1	1		1	3
military tool, political tool, control of water resources, development disputes	1				1
political goal, development dispute		1			1
military target, military tool, political tool, development dispute				1	1
development dispute, political tool	1	1			2
military and political tool	1				1
terrorism, political tool	3		1		4
military tool, political tool,terrorism	1				1
military goal, military target	1				1
military goal, control of water resources	1				1
total	45	11	1	6	63

³⁷ Ibid.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ Ibid.

In Gleick's chronology, no case identifies water as a *causi-belli*. Gleick found only three disputes where water seems to have been the sole cause for conflict (development disputes, control of water resources). One incident, however, caused a violent conflict in India in 1991. When other reasons appear to be the cause of the conflict, such as military and political tool and target, however, water becomes more problematic, but generally we see water conflict or scarcity as the result of some other conflict, or water as one of many factors contributing to conflict.

After examining many water disputes which occurred over the last five Centuries, Gleick concludes that water itself is not the sole cause of violent conflict. Even in the highly charged Middle East, perhaps the world's most prominent meeting place for high politics and high water tension, arguably only one incident can be pointed to as the cause of war—which was in the Jordan River Basin. Indeed the riparian continued to meet at what was called the "table talks" throughout periods of conflict and calm.

There are those who say there will be war over water, those who say there might be conflict over water, and those who say there will be cooperation between states over water resources. In other words, there are regionally several points of views regarding the importance of water.

The first argument suggests that scarcity of water is the key factor in any future conflict in particular regions. The second argument accepts the idea of water as merely a contributing factor rather than the major source of any possible conflict. A third viewpoint sees the scarcity and the potential conflicts as a technical problem. Engineers and economists believe that the problem can be solved technically. Therefore, no single theory or approach has as yet been developed that can deal with the layered political,

socio-economic, and strategic entanglements of fresh water that underlie hydro-conflict. Since water are so multifaceted, has so many applications, and involves so many inter relationships, if existing water conflict models are to work at all, they must be based on narrowly conceived, fairly simple assumptions and relatively small data sets too restricted to contain all the intricacies of water.⁴¹

All in all, fears of water wars are fed by the perception of global water crisis and recent unsettled conflicts over trans-boundary rivers. Evidence suggests, however, that water resources and increasing scarcity in and by themselves have not led to the outbreak of war, although conflict over the control of water resources has occurred between riparian countries.”⁴² For example, Turton concludes that, “water wars are nothing more than a myth.”⁴³ It must not be forgotten that although the water wars are unlikely to happen, issues of water scarcity problems will be at the forefront of the international agenda for decades to come, such as in Euphrates-Tigris River Basin. The next chapter will focus on why water is problematic in this basin and summarize each country’s perspective on water issues.

⁴¹ Peter Rogers and Peter Lydon, eds., *Water in the Arap world: Perspectives and Prognoses* (Cambridge: Harvard University Press, 1994), p.261.

⁴² Waltina Scheumann and Axel Klaphake, “The Convention on the Law of Non-navigational Use of International Watercourses.” [<http://www.water-2001.de/supporting/WaterConvention.pdf>]. December 2002.

⁴³ Hussein Solomon and Anthony Turton, eds., *Water Wars: Enduring Myth or Impending Reality* (Bonn: The African Centre for the Constructive Resolution of Disputes, 2000), p.166.

III. WHY IS WATER SHARING PROBLEMATIC AND SO IMPORTANT IN THE EUPHRATES-TIGRIS RIVER BASIN?

A. WHY WATER SHARING IS PROBLEMATIC IN EUPHRATES-TIGRIS RIVER BASIN

During the course of the history, water has been a limiting factor of production and has played a central role in shaping political relationships in the Middle East. It has affected the standard of living and life styles of people since ancient times. Maps of ancient civilizations show that people usually located along water ways, and expanded along rivers and seashores.⁴⁴ Moreover, water has always been scarce in the land between the Nile and the Euphrates Rivers. Especially in the Euphrates–Tigris River Basin, the source of life for three riparian countries, water has become a cause of tension now that each country has initiated projects to control the river’s water for their needs.

The Tigris and Euphrates are two of the longest and most pivotal rivers in the Middle East. Both rise in the high mountains of northeastern Anatolia and flow down through Turkey, Syria, and Iraq and eventually join to form the Shatt Al-Arab 200 km before they flow into the Gulf. The Euphrates River has its springs in the highlands of Eastern Turkey and its mouth at the Persian Gulf. Additionally, it is the longest river in Southwestern Asia at 2,700 km, and its actual annual volume is 35.9 billion cubic meters (bcm.).⁴⁵ The Tigris is the second longest river in Southwest Asia at 1,840 km and its

⁴⁴ Elisha Kally and Gideon Fishelson, *Water and Peace: Water Resources and the Arab – Israeli Peace Process* (Westport, Conn. : Praeger, 1993), p.3.

⁴⁵ John F. Kolars and William Mitchell, *The Euphrates River and the Southeast Anatolia Development Project* (Carbondale: Southern Illinois University Press, 1991), p.23.

actual volume is approximately 42 bcm.⁴⁶ The following explains the reasons why the water is problematic in the Euphrates-Tigris River Basin:

1. Geography and Climate:

The Middle East is one of the most arid regions in the world and a transitional zone between equatorial and middle latitude climates. The annual rainfall is meager, the summer months are exceedingly hot and dry—median temperatures approach 50 degrees Celsius and daytime relative humidity is as low as 15 per cent.⁴⁷ As a result, evaporation in the basin is very high, especially during the summer season.

The basin's water is enriched by autumn and spring rains and sustained by winter snows. Due to the erratic climatic condition mentioned above, the flow of the Euphrates and Tigris Rivers is constantly fluctuating. These two factors worsen the problem of irrigation from these rivers and require each riparian country to control the water and supply of these rivers by establishing dams which causes tensions between them.

2. Hydrography of the Basin:

The Euphrates and Tigris Rivers exhibit distinctive characters. They receive all their waters near their sources, and they become smaller as they flow to the sea. Besides the extreme seasonal variation in the velocity of the rivers, the annual discharge also varies greatly from year to year which makes water management more problematic (See Figure 3⁴⁸ and Figure 4⁴⁹). For example, the minimum flow of the Euphrates is reported

⁴⁶ Dolatyar and Gray, *Water Politics in the Middle East*, p. 121.

⁴⁷ Ibid, p. 120.

⁴⁸ Arnon Soffer, *Rivers of Fire: The Conflict over Water in The Middle East* (United States of America: Rowman & Littlefield Publishers, 1999), p. 81.

⁴⁹ Ibid, p. 81.

to be as low as 100 to 180 cubic meters per second (cm^3/s) during the summer, while the maximum flow could reach 5,200 to 7,000 cm^3/s when the spring snows melt.⁵⁰ In April and May the Euphrates's flow becomes eight times higher than that in August and October.⁵¹

Figure 3: Euphrates discharge in 1938 - 1980

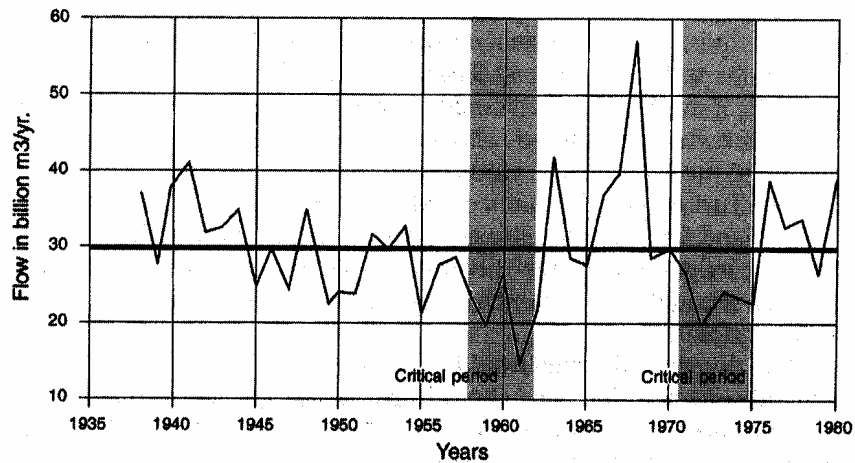
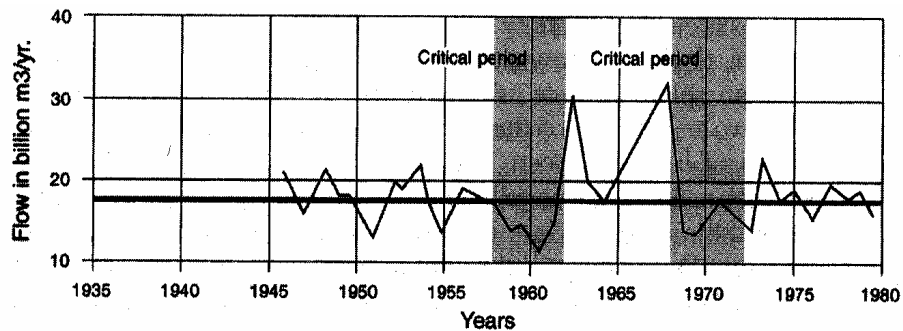


Figure 4: Tigris discharge in 1946-1979 (in Cizre)



The rivers annual flow cycles in natural conditions have three distinct periods⁵²

(see Figure 5):

⁵⁰ Ibid, p. 122.

⁵¹ George Joffe, *The Issue of Water in the Middle East and North Africa in Caroline*, in Thomas and Darryl Howlett, eds., *Research Politics: Fresh Water and Regional Relations* (Buckingham: Open University Press, 1993), p.73.

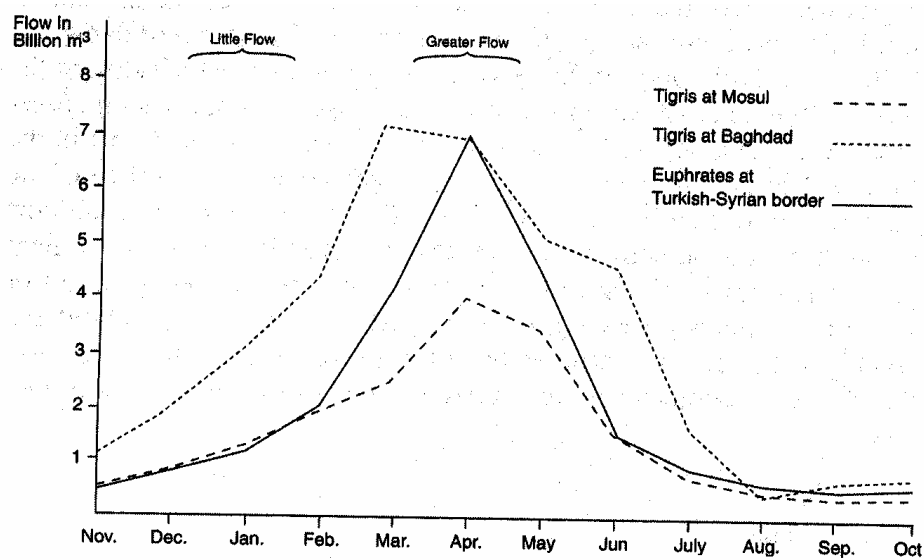
⁵² Dolatyar and Gray, *Water Politics in the Middle East*, p. 122.

(a) First Period: A minor rise in the rainy season, from November to March, during which 20 percent of the annual percent of the annual flow occurs.

(b) Second Period: A major rise in the spring, during which the rivers are in spate as a result of snowmelt in the mountains of Turkey and augmented by seasonal rainfall. This period normally lasts from April to June and contributes 70 percent of the total annual flow.

(c) Third Period: A summer low water, lasting from July to October, with only 10 percent of annual flow.

Figure 5⁵³: Monthly Discharge of Euphrates (1950-1960) and Tigris (1931-1966)



As far as agriculture is concerned, the rivers' seasonal fluctuation is very unfavorable because its rise is too late for winter crops and too early for summer crops.⁵⁴ Therefore, considerable engineering capacity and an efficient water-management system are required to control the rivers' water. Although upper stream countries' water management projects cause controversy in the basin, it is not only beneficial but also

⁵³ Soffer, *Rivers of Fire*, p. 78.

necessary to the downstream state. Also, this situation increases the interdependency between riparian countries, since none of them can solve this problem alone.

3. Population and Economy:

Given the importance of water in the region, Turkey, Syria, and Iraq want to use the basin's water for their industrial and agricultural development. The scarcity of water resources exacerbates the regional tensions already present among governments. Indeed, all the states of Euphrates-Tigris River Basin which have pursued economic reform heavily relying on industrialization (especially Turkey) and agriculture. The rapid population growth (see Table 1), level of economic development, urbanization, increasing irrigated land (see Table 2) needed to satisfy increasing food demand, rising living standards, and the lack of environmentally sensitive technology adversely affected the quality and quantity of fresh water in the region. As a result, the usage of the Euphrates and Tigris Rivers' water has increased in the past decades and has caused tension in the basin.

Table 1: Euphrates and Tigris Riparians: Basic Socioeconomic Data⁵⁵

	POPULATION		Population Growth (%)		Agriculture as percentage of GNP	
	1995	2010	1980-1992	1992-2005	1965	1993
Turkey	61	80	2.3	1.9	34	15
Syria	15	24	3.3	3.3	29	30
Iraq	20	34	3.6	3.8	18	16 ^a

^a 1989

⁵⁴ Ibid, p. 123.

⁵⁵ Ibid, p. 107.

Table 2: Irrigated Land Data of Turkey, Syria and Iraq

Country	1993 estimation ⁵⁶	1998 estimation ⁵⁷
Turkey	36,740 sq. km.	42,000 sq. km.
Syria	9,060 sq. km.	12,130 sq. km.
Iraq	25,500 sq. km.	35,250 sq. km.

4. Basin's Insufficient Amount of Water for Future Use:

In the face of increasing population, industrialization and irrigation need, the access to water resources has become of vital importance for the riparian states since there is decreasing water consumptions per capita in the region as we see in the Table 3⁵⁸.

Table 3⁵⁹: Water Quantities Per Capita (cubic meters per year per capita)

	YEARS	
	<u>1993</u>	<u>2020</u>
Water-Rich Countries (U.S., Canada)	10,000	8,000
Iraq	2,110	950
Turkey	1,830	980
Syria	1,420	780

⁵⁶ The World Factbook 2001, "Irrigated Land." [<http://www.bartleby.com/151/a16.html>]. April 2003.

⁵⁷ The World Factbook 2002, "Field Listing-Irrigated Land." [<http://www.cia.gov/cia/publications/factbook/fields/2146.html>]. April 2003.

⁵⁸ Republic of Turkey Ministry of Foreign Affairs Home Page, "A Scramble For Water Resources Is Under Way In The Middle East" [m <http://www.mfa.gov.tr/grupa/ac/aci/default.htm>]. December 2002.

⁵⁹ Ibid.

5. Trans-boundary Character:

Every major river in the basin crosses one or more international borders. Both the Euphrates and Tigris Rivers rise in the mountains of southern Turkey and flow southeastwards, the Tigris flowing directly into Iraq from Turkey and the Euphrates crosses Syria into Iraq. As a result, the water environment in an upstream country has a direct effect on the nature of the river downstream, and vice versa. The commonality of the water resources and their scarcity has rendered them a source of conflict among the riparian countries that share them

6. Unreliable Information:

Underlining the significance of the acquisition, verification and analysis of data for a rational water management system, Kolars states that:

Data regarding stream flow, precipitation, evapotranspiration, water removals, return flow, salinity and a host of other variables are notoriously scarce, incomplete and open to question everywhere in the Middle East.⁶⁰

A lack of reliable and mutually accepted information about the overall inventory of water resources is another obstacle to resolving the water conflicts in the Euphrates–Tigris Rivers Basin. There are wide discrepancies between different accounts of hydrological data concerning the Euphrates-Tigris basin. This also is the case regarding the current levels of water extraction for irrigation and plans for development. This situation can mislead observers

7. Unrealistic Existing Demands:

The total amount of water, planned to be used by the riparian countries exceeds the total flow capacity of the rivers due to their expected future demands. Obviously, it is

⁶⁰ Dolatyar and Gray, *Water Politics in the Middle East*, p. 155.

impossible to meet such demands as far as the river’s potential flow capacity is concerned as seen in the Figures 6 and 7.⁶¹

Figure 6⁶²: Water Potential of the Euphrates River and the Consumption Targets of the Riparian States

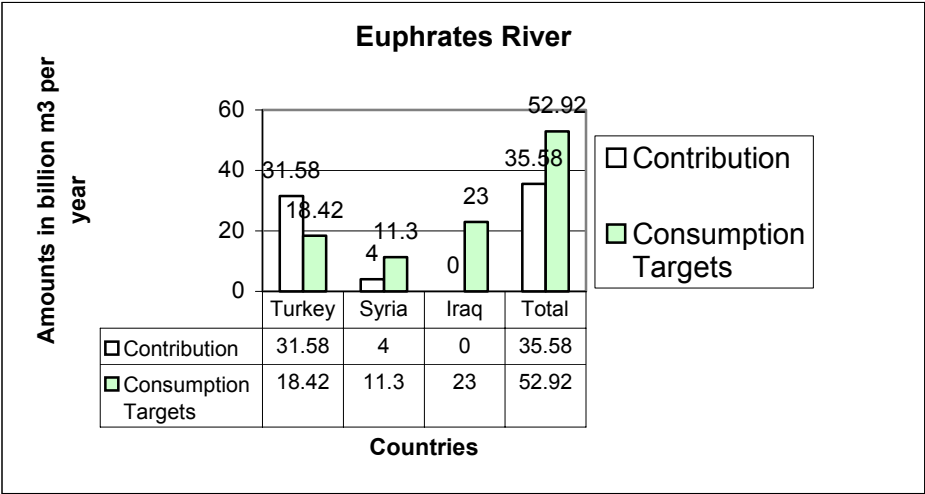
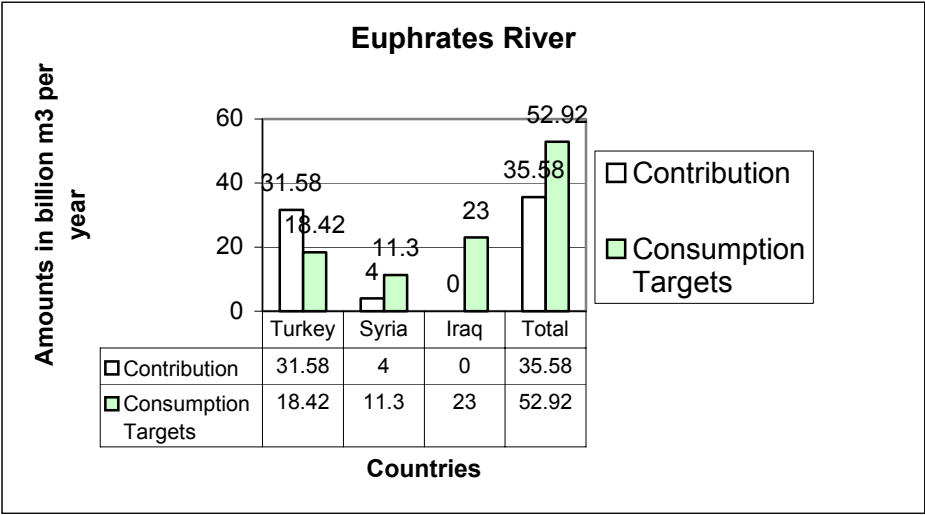


Figure 7⁶³: Water Potential of the Tigris River and the Consumption Targets of the Riparian States



⁶¹ Ibid.

⁶² Ibid.

⁶³ Ibid.

8. International Law and Trans-boundary Rivers:

International rivers pose a particular problem in the context of international law since the rules of international law only deal with the rights and interests of the riparian states. The disagreement in the Euphrates–Tigris River Basin among Turkey, Syria, and Iraq centers on different interpretations of international law.

The literature of international water management applies five principles of equal importance regarding the judgment of demands on a basin. In the Euphrates-Tigris case, three of them become important depending mainly on each riparian state's position with relation to the water sources in terms of their interest. These are:

- The principle of absolute territorial sovereignty (the Harmon Doctrine),
- Absolute territorial integrity, and
- The principle of prior appropriation.

The first principle of “absolute sovereignty” is advantageous to the upstream state because it regards water bodies as an integral part of a state's national territory. Meanwhile, the downstream states prefer the second principle of absolute integrity that allows them to accuse, and perhaps even censure, the upstream state for illegally taking measures which are disadvantageous to its territory. Clearly, when these two principles of international law come into conflict, they do not permit a reconciliation of interests. The third principle of “prior appropriation,” which favors neither the upstream nor the downstream state, but rather the state that puts the water to use first, thereby protecting those uses which existed prior in time.

The Helsinki Rules and the UN convention on trans-boundary rivers highlight the ambiguity of international law when it comes to water resources. There are three important articles in the Helsinki Rules relating to the water issue in the Middle East:⁶⁴

- With Article IV, each basin state is given the right to use the “International Drainage Basin” reasonably, equitably, and beneficially. The importance of Article IV was that, for the first time the idea of using the international waters beneficially rather than water by itself was decided in the international law.
- In Article V, the factors that define the equitable and reasonable uses of the trans-boundary rivers were presented.
- Article VII asserts the obligation not to cause significant harm to downstream riparian while using the river basin.⁶⁵

a. Arguments of Turkey, Syria, Iraq and the International Water Law

Iraq bases its arguments on the principle of prior appropriation. Iraqi authorities claim that Iraq has acquired rights relating to its ancestral irrigations on the Euphrates and Tigris rivers.⁶⁶

Syrian authorities also base their arguments on the principle of prior appropriation asserting that Syria has possessed acquired rights dating from antique periods over the rivers that pass thorough Syrian territory. The second Syrian argument

⁶⁴ The Helsinki Rules on the uses of the Waters of International Rivers adopted by the International Law Association at the fifty-second conference, held at Helsinki in August 1966.

⁶⁵ International Law Association, “Report of the Committee on the Uses of the Waters of International Rivers.” [http://www.internationalwaterlaw.org/IntlDocs/Helsinki_Rules.htm]. December 2002.

⁶⁶ Amir Sabbur, *Report on Recent Syria – Iraq Talks on Water sharing*, Damascus al-Thawrah, October 1997, p. 12 (Translated by the Foreign Broadcast Information service).

over its rights on the Euphrates and Tigris rivers has its roots in the principle of absolute territorial integrity. According to Syrian claims, the waters of those rivers must be shared among the riparian states according to the quota to be determined.

In response to those arguments of the lower riparian states, Turkey holds to Article V of the UN Convention, claiming that it is using the waters of the Euphrates and Tigris rivers equitably and reasonably. Although the Harmon Doctrine of absolute sovereignty supports Turkey's position as an upper stream state, Turkey favors negotiating the issue with Syria and Iraq.

There are several reasons for the failure to find a solution in the basin in terms of International Law. First, these rules are not applicable to every specific case. Second, there is no legal enforcement mechanism that will provide the UN with the ability to control the behaviors of the riparian states. The last factor is the ambiguity between the articles. The articles provide both upper stream and down stream states with enough legal rights to defend their own arguments.

B. WHY WATER IS SO IMPORTANT FOR EACH COUNTRY?

For reasons explained above, the Euphrates and Tigris Rivers present complex relations between the shared owners and users of the two rivers, while creating some concerns. Due to these complex relations, the riparian states are strategically positioned between two main areas of concern, which are those of domestic politics domestic economies of each country. These domestic political and economic concerns can be summarized as:

- Turkey's political concern is its efforts to increase the living standards in the southeast region of the country, which have been heavily inhabited by Turkish citizens of Kurdish ethnic origin. This basically shapes Turkey's economic calculation for the continued development of its agricultural and industrial base. Additionally, the Euphrates and Tigris Rivers' water is a critical consideration for the country's increasing demand.
- The Syrian government's concern is to subjugate the Sunni-Muslims in order to provide stability and sustain their loyalty to the regime in the country, since power belongs to an Alawi minority. Syria has an agriculture-based economy, heavily dependent on Euphrates water for irrigation and hydro energy production. The direct link among water, food, and economic expansion is of vital importance for the Syrian government to be successful at providing stability within the country.
- Parallel to Syrian concern, Saddam's concern is to dominate Shi'ite Arabs and Sunni Kurds, to consolidate his regime, and to increase the possibilities of his survival. Economically, Iraq needs the basin's water for its irrigation needs and energy production.⁶⁷

1. Turkey

Contrary to the prevailing belief, Turkey is not a water rich country. Although Turkey has at present more water resources than some of its neighbors, it is a country which will find itself unable to meet its own needs in the near future because Turkey's

⁶⁷ Salih Korkutan, *The Sources of Conflict in the Euphrates-Tigris Basin*, p. 33.

average annual runoff is about 186 billion cubic meters (Bm3).⁶⁸ The amount available for consumption of Turkey's capacity is merely 110 Bm3, including 12 Bm3 of groundwater.⁶⁹

In total there are 26 major hydrologic basins in Turkey, however, Euphrates and Tigris rivers' basin contains the largest volume among the others. These two rivers comprise nearly one-third of the nation's total surface flow: 17 percent from the Euphrates and 11.5 percent from the Tigris.⁷⁰ Under these considerations, Turkey's economic and political concerns follow.

a. Domestic Economic Concerns

Turkey's development strategy during the 1950s and 1960s aimed at fostering agricultural and industrial production, improving infrastructure, and establishing a market economy. The implementation of such strategy resulted in steady and substantial growth while increasing Turkey's dependence on national resources, such as water. Two major domestic economic concerns have basically shaped the Turkish water policy in the basin.

The first concern is that Turkey perceives the water resources as a source for irrigation since its economic development focused on agriculture. Turkey, as is evident from its being one of the few countries in the world that is self-sufficient in food, has given priority to agricultural development since the establishment of the Turkish Republic in 1923. Despite the rapid industrialization in the 1980s, agriculture maintains its importance in the overall picture of the Turkish economy. To expand its irrigated

⁶⁸ Republic of Turkey, Ministry of Foreign Affairs, "Turkey's Position Relating to the Water Resources." [<http://www.mfa.gov.tr/grupa/ad/adg/adgb/Chap1b.HTM>]. April 2003.

⁶⁹ Ibid.

⁷⁰ Salih Korkutan, *The Sources of Conflict in the Euphrates-Tigris Basin*, p. 35.

lands to improve its agricultural production, Turkey initiated many water projects to control its water and to provide for its agriculture. Among these projects, the most important and most problematic one is the Southern Anatolia Project or Guneydogu Anadolu Projesi (GAP, the Turkish acronym). GAP is a \$32 billion network of 22-dams and 19 hydroelectric projects that is designed to bring electricity and irrigation water to the poor southeast and cover one-fourth of Turkey's future electricity needs.

The second concern views water resources as a means for cheaper and domestically produced energy in order to provide an industrialized economy. The demand for electricity began to exceed supply and by the late 1970s the power shortage began to constrain industry. More importantly, Turkey's electricity demand is growing rapidly at an 8% increase on average for many years.⁷¹ To meet the demand and the energy crises, the Turkish government has tried a number of strategies.

Given the country's geographical situation-it is endowed with rainfall and mountain catchment areas, which provides good hydropower potential-Turkish policy makers focused on hydro electrical resources with the aim of rapid development. The main objective of this policy is to meet the increasing demand for energy, in line with economic development targets, population growth rate, transition to industrialization and social changes, in a timely, reliable, inexpensive, high quality manner, while taking the environment into account. In this regard, the projects were initiated and dams, hydroelectric power plants, and other water related facilities were built to produce energy all around the country. As a result, the share of electric production from hydroelectric power plants in total production increased considerably (see Table - 4).

Table 472: Turkey's Electric Production and Consumption (2000)

	Percentage	OECD Ranking
Electricity production, share of fossil fuel	74.1%	Rank: 10
Electricity production, share of hydro	25.7%	Rank: 9
Electricity production, share of nuclear	0.00%	Rank: 18
Electricity production : 119.2 billion kWh		Rank: 15
Electricity consumption : 114.2 billion kWh		Rank: 14

b. Domestic Political Concerns

The domestic political rationale behind the Turkish water policy and its determination about the GAP project has two dimensions that are intrinsically related.⁷³

The first dimension is national security and the integration of the southeast part of Turkey into the rest of the country. It is geared toward ensuring a stable and dependable domestic constituency base on strategic international interaction, especially with the neighboring states.

The second dimension, which focuses more directly on the internal political struggle among competing parties, is the political potential that the basin's region offers parties in order to mobilize electoral support for their position in Turkey.

⁷¹ Republic of Turkey/Prime Ministry Undersecretaries of Foreign Trade Export Promotion Center, "Economic Outlook." [<http://www.musiad.org.tr/dik/english/sectorinfoofturkischeconomy/energy.htm>]. April 2003.

⁷² OECD Countries' Economic & Social Data Ranking, "Turkey." [<http://www.hhs.se/personal/suzuki/o-English/Turkey.html>]. April 2003.

⁷³ Salih Korkutan, The Sources of Conflict in the Euphrates-Tigris Basin, p. 39.

1. National Security Concerns: The main issue involving water as a national security concern derives from the fact that the southeast region has been one of the nation's least developed regions. The backwardness of the region became an emphatic topic of national security when the Kurdish terrorist group called PKK emerged in the early 1980s. The PKK has tried to use the low living standards in the region to justify and to impose its separatist goals directed against the inhabitants and the government facilities in the area.

Turkish policy makers became more concerned with security when Syria began supporting the PKK activities in the Turkish provinces. Once the development of the region was perceived as the key to eliminating economic disparities with other parts of the country, the GAP was considered as the solution to the region's threat to national security and integrity.

2. Political Potential: Given the low Gross National Product—population and human development index values—an investment in the southeast is more easily translatable to votes when compared with the other regions. That is why all parties are keen to mobilize political support in the region, which explains the unquestioned commitment to the GAP.

2. Syria

Water is a scarce resource in Syria as it is throughout the Middle East. Along the western coastal mountain range Syria's climate is very Mediterranean; however, there is a long dry season from May to October. More than half of the Syrian territories are desert

with less than 250 mm of rainfall per year.⁷⁴ Therefore, the countries fresh water resources are of vital importance to irrigation, industrial purposes and daily consumption.

Syria is divided by seven water basins having different volumes of surface and underground water resources. There are 16 main rivers and tributaries in the country. Among these rivers Syria is mainly dependent on the Euphrates and to a smaller extent on the Tygris, Orontes, and Yarmouk rivers. The Euphrates accounts for as much as 86 percent of the water available to the country.⁷⁵ Under these considerations, a summarization of Syria's economic and political concerns follows.

a. Domestic Political Concerns

Syria's political concerns regarding the Euphrates and the Tigris rivers can be explained as two interrelated reasons:

First, since the Euphrates originates from Turkey, Syria does not want to be dependent on Turkey for food supply and water flow. As a result, Syria sees the water issue as a threat to its national security. According to Syrian policy makers, if the national security of the state of Syria is jeopardized, the very existence of the elite dominated regime itself will also be in danger. Thus, to secure its own position in the country and to defend the national security of Syria, the government has to use Euphrates water for its agricultural development, industrial needs, and electric production.

Additionally, Syria does not want Turkey to have an advantage over the water issue because Syria fears that Turkey may use its advantageous position as a political weapon in the region to employ power politics schemes for hegemonic reasons. In this

⁷⁴ Syria Gate, "All about Syria, Geography: Climate." [<http://www.syriagate.com/Syria/about/geography/climate.htm>]. April 2003.

struggle of self-sufficiency, the Syrian government views the fresh water resources as one of the most important strategic assets. Moreover, by using the water resources efficiently, the regime hopes to be able to dominate the politics in the region and lead the Arab World while establishing the Greater Syria.⁷⁶

Secondly, Syria has a lot of different ethnic and religious minorities. Estimated 85 percent of population adheres to some form of Islam: about 13 to 15 percent of Muslims are Alawis; less than 1 percent, Shias; and remainder, Sunnis.⁷⁷ About 10 percent of population observes some form of Christianity, and about 3 percent are Druzes, small numbers of Jews, Yazidis, and others.⁷⁸ The ethnic structure of the Syrian society is as various as the religious structure.⁷⁹ Most of the population (90%) is Arab.⁸⁰ Minorities include the Kurds (mostly in the northern farm regions) and Armenians (in the northern cities). There are also communities of Palestinians in Damascus and a community of Tcherkas from the Caucas.

Because of these religious and ethnic complexities, the consciousness of a Syrian nationality is not well developed. This effort of forming a Syrian nationality, or at least keeping those different cultures together under the name of the state of Syria, has become a more difficult task because the Syrian regime itself is Alawi dominated—a

⁷⁵ Salih Korkutan, *The Sources of Conflict in the Euphrates-Tigris Basin*, p. 54.

⁷⁶ Murhaf Jouejati, *Water Politics as High Politics: The Case of Turkey and Syria* in Henri J Barkey, ed., *Reluctant Neighbor: Turkey's Role in the Middle East* (Washington D.C.: United States Institute of Peace Press, 1996), p.131.

⁷⁷ Library of Congress, "Country Studies: Syria." [[http://memory.loc.gov/cgi-bin/query/r?frd/cstdy:@field\(DOCID+sy0005\)](http://memory.loc.gov/cgi-bin/query/r?frd/cstdy:@field(DOCID+sy0005))]. April 2003.

⁷⁸ Ibid.

⁷⁹ Race and Ethnicity Analysis (2001). [<http://bloodbook.com/race-eth.html>]. April 2003.

⁸⁰ Syria Gate, "All about Syria: General Information, Ethnic Minorities." [http://www.syriagate.com/Syria/about/general/general_information.htm]. April 2005.

minority group. By contrast, among both Arabs and minority groups, primary individual loyalty is to the local ethnic or religious community rather than the government itself. Thus, to neutralize the dissatisfaction of the other ethnic and religious groups and to keep their loyalties to the regime, the Syrian government has to satisfy the demands of all groups. The Syrian government knows that:

- In economic life, the satisfaction of all groups has been directly related to the water resources of the country since the Syrian economy depends mostly on agriculture.
- Any failure in maintaining the flow of the Euphrates, and to a lesser extent the Tigris River, may deteriorate the living standards of the various groups, thus threatening the survivability of the Syrian government.

Because of the delicate positions of ethnic and religious groups and their economic reliance on the fresh water resources, the Syrian regime has always tried to get the maximum share from the Euphrates and the Tigris rivers to sustain the economic well being and loyalties of those groups to the government.

b. Domestic Economic Concerns

The Syrian economic concerns along the Euphrates and Tigris Rivers are more or less the same as Turkey's concerns. The first of those concerns is Syria's need for water in agriculture, and the second is the need to harness the hydroelectric potential of these rivers.

Syria is primarily an agricultural country. Agriculture remains a vital sector of the Syrian economy, supplying necessary products for the industrial sector and employing over 25% of the labor force. For instance, in 1992, the agriculture sector

captured 29.8% of GDP; a 10% increase over 1970.⁸¹ Since agriculture is still the main economic activity and a major source of income (See Table 5), the economic development of the country greatly depends on the waters of the Euphrates and the Tigris Rivers. For instance, the irrigated area by the Euphrates produces over 50% of the total value of agricultural production.

Table 5⁸²: Syrian GDP - Composition by Sector and Labor Force by Occupation

SECTOR	GDP – Composition (2000)	Labor force-by occupation(1996)
Agriculture	27%	40%
Industry	23%	20%
Services	50%	40%

Syrian also needs the Euphrates and the Tigris Rivers for hydroelectric power. In the past, the Syrian energy and power sectors have made no efforts to manage the Syrian power system and renewable energy resources to meet energy demands. As a first energy source Syria has oil. In the 1950s, Syria began to use oil resources. Oil consumption doubled between 1960 and 1970 and has played a vital role in the Syrian economy by generating much needed foreign exchange and by meeting the country's increasing energy demands. Using oil revenue, the Syrian government built new dams, increased the generating capacity of the hydroelectric power plants and expanded the electricity production (see Table 6).

⁸¹ Cafe Syria, "Syrian Economy: Agriculture." [<http://www.cafe-syria.com/Agriculture.htm>]. April 2003.

Table 683: Syrian Electricity consumption and production

SYRIA (2000)	Percentage
Electricity production, share of fossil fuel	64%
Electricity production, share of hydro	36%
Electricity production, share of nuclear	0%

The first national energy policy was launched in 1974. The predominant energy and electric power supply policy pursued in Syria is based on meeting demand through the expansion of conventional electric production capacity. Although the electric power industry was one of the fastest growing sectors of the economy in the early 1980s, this did not last long. By 1985 electricity consumption outstripped production, which forced power cutbacks of four hours a day throughout the country. This affected the country's economy negatively.⁸⁴ Declining water levels in dams, because of the drought years, and the increasing electricity consumption resulted in shortage of electricity all around the country during the 1990s. Since these shortages in electricity have impeded economic growth and industrial development in Syria, the Syrian Government needs to maintain high volumes in the Euphrates. The high volume would enable the dams and power plants to operate at maximum capacity, thus solving the electricity problem throughout the country.

⁸² CIA Fact Book, *Country Profile – Syria*, 2002.

⁸³ Ibid.

⁸⁴ Firro Kais, *The Syrian Economy under the Assad Regime* in Moshe Ma'oz and Avner Yaniv, eds., *Syria under Assad* (New York: St. Martin Press, 1986), p. 36.

3. Iraq

The prevalent climate in Iraq is mainly subtropical and semi-arid. The average temperatures in Iraq range from higher than 48 degree C (120 Fahrenheit) in July and August to below freezing in January.⁸⁵ The Iraqi climate is similar to that of the extreme southwestern United States with hot, dry summers, cold winters, and a pleasant spring and fall. Roughly 90% of the annual rainfall occurs between November and April, most of it in the winter months from December through March.⁸⁶

Under these hard climatic conditions, Iraq needs extensive water resources to maintain its economic and industrial development. When compared with the other states in the region, however, Iraq has more fresh water resources than most of the Middle Eastern countries. Nevertheless, as a result of the neglect and bad management of the irrigation networks and the environmental degradation, the water potential of Iraq has deteriorated and the waters of the Euphrates and Tigris have gained much more importance than ever for the Iraqi government both economically and politically.

a. Domestic Political Concerns

The domestic political concerns of Iraq over the water issue parallel Turkey's and especially Syria's concerns. These concerns are related directly to the national security of Iraq. Like the Syrian example, the link between the water issue and the national security of Iraq derives from two reasons:

First, the governmental structure of Iraq is one in which the functions of the elite, the regime, and the state overlap to the point of being indistinguishable. In this

⁸⁵ Global Security Organization, "Iraq." [<http://www.globalsecurity.org/military/world/iraq /climate.htm>]. April 2003.

ambiguous structure of government, any challenges to the elite dominance are perceived as a threat to national security. If the national security of the state of Iraq was jeopardized, then the very existence of the regime itself would also be in danger. So, in order to secure its own position in the country and to defend the national security of Iraq, Saddam's Regime needed to exploit basin's water effectively. Since the water resources were of critical urgency to Iraq's agriculture and economy, any failure in maintaining the flow of the Euphrates and the Tigris Rivers threaten the regime's survivability, which is already questionable.

In addition to these facts, the Saddam regime tries to lead the Arab World and dominate the politics in the Middle East. Under these circumstances, Iraq perceives the Euphrates and the Tigris Rivers as highly strategic resources to be maintained and tries to secure the maximum benefit from those resources.

Second, Iraq is not a homogenous nation-state (See Table 7). Ethnically and religiously diversified, Iraqi society has made it rather difficult for Saddam's ruling minority (See Table 8), which was Sunni Muslim, to gain support from other ethno-religious groups inside the country.⁸⁷ Many of the Shi'as reside in the Euphrates and Tigris basin in southern Iraq and benefit from the irrigation schemes and the agricultural production, any loss to the flow of the Euphrates and the Tigris rivers would degrade the living conditions of the Shi'as. Subsequently, the degradation of living conditions in the Euphrates-Tigris basin in southern Iraq would be a good justification for the Shi'ite community to oppose the government in order to end the Sunni Muslim domination in the

⁸⁶ Ibid.

⁸⁷ CIA, World Factbook, 2002.

country. As a result, to maintain the stability of the regime in the country, Saddam has to maintain and even increase the amount of water that it uses from this basin.

Table 7⁸⁸ : Iraq's Ethnic Groups

Arab	%75-80
Kurdish	%15-20
Turkoman, Assyrian or other	%5
Total Population: 24,001,816 (July 2002 est.)	

Table 8⁸⁹: Religions in Iraq

MUSLIM	Sunni	32-37%	97%
	Shi'a	60-65%	
Christian or other			3%

b. Domestic Economic Concerns

Two factors can be examined when considering the domestic economic concerns of Iraq over the use of the Euphrates and the Tigris Rivers.

The first area which puts the two rivers into the top priority list of the Iraqi government is the irrigation potential of the rivers for developing agriculture and the

⁸⁸ Ibid.

⁸⁹ Ibid.

domestic use of these fresh water resources by the rapidly increasing urban population. Another factor that increased the importance of the Euphrates and the Tigris rivers for the Iraqi government is the August 1990 United Nations' trade embargo. A side effect of this embargo may be to impel Baghdad to seek total food security within its territory in the future. This situation places more demand on the Iraqi water resources, especially Euphrates-Tigris River Basin water.

The second area is the hydroelectric energy that can be produced by using the Euphrates and Tigris. Iraqi electric consumption increased by a factor of fourteen between 1968 and 1988, and it was expected to double every four to five years in the late 1990s.⁹⁰ Ongoing rural electrification, which included about 7,000 villages throughout the country, contributed to this increased demand.⁹¹ Iraq's increasing electric needs enhance the importance of the Euphrates and Tigris Rivers.

⁹⁰ World Bank, *World Development Report 1998-1999* (New York: Oxford Press, 1999), p. 190.

⁹¹ Helen Chapin Metz, *Iraq: A Country Study* (Washington: Library of Congress, 1990), p. 167.

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IV. IS THERE A HYDROPOLITICAL CONFLICT IN THE EUPHRATES-TIGRIS BASIN?

A. INTRODUCTION:

Since 6000 BCE, successive civilizations that settled and flourished in Mesopotamia (the land between the Euphrates and the Tigris rivers) have had an engineering approach to water related management, which is essentially concerned with supply augmentation and satisfaction of demand for water rather than demand management.⁹² Because of the climatic condition of the region and hydrography of the basin discussed in Chapter III, at the early stages of settlement, villagers learned to cooperate to build ditches⁹³ to solve their irrigation problem.

In Mesopotamia, the political, social and economic structures of the old civilizations were mostly dependent on well-developed and well-maintained hydro-agricultural system. These needs were reflected in the Code of Hammurabi, which established water laws and rules for maintaining irrigation projects⁹⁴ through large-scale cooperation. Therefore, it reflects that Mesopotamian civilization not only had enough engineering skill, but also had well-established civil institutions to solve their water problem so as to successfully sustain some 20 million inhabitants.

The old civilizations that lived in Mesopotamia had the social prowess and well-established legal institutions required for maintaining the functionality of their organized water system and for preventing conflict. For example, the code of Hammurabi in

⁹² Dolatyar and Gray, *Water Politics in the Middle East*, p. 124.

⁹³ Ibid, p. 124.

⁹⁴ Ibid, p. 125.

eighteenth century BCE, and the Islamic Law in the Medieval Era, are elaborate sets of principles to regulate water management and to abate conflict.

The Ottoman Empire was the last and biggest civilization to control the Mesopotamia region as a whole. During its reign, Ottoman Turks repaired the hydraulic system and relative prosperity came back to region again after a long history of invasion. After the dissolution of the Ottoman Empire, however, the entire Middle East drastically changed. This event opened a new page in the history of Mesopotamia, the division of the Euphrates–Tigris basin between three parties—Turkey, Syria, and Iraq—was one of the important consequences of this dissolution. Subsequently hydro politics gradually became a major international issue in Mesopotamia and Middle East.

However, until 1975, neither the absence of integrated planning or the entire basin nor the lack of comprehensive agreement among three riparian countries on a water-sharing regime, led to any international friction among them,⁹⁵ because of the relative abundance of water in the basin which could satisfy all parties. The relative abundance of water in the basin also did not prevent the riparian countries of the basin from conducting some bilateral or trilateral negotiations. As a result, three riparian parties facilitated a peaceful course of development in the region. Even in this period, the projects implemented by parties didn't cause a significant controversy. This cooperative mode of conduct has often been overlooked by Western commentators who incline towards conflict-oriented scenarios.⁹⁶

⁹⁵ Ibid, p. 131.

⁹⁶ Ibid, p. 131.

For instance, late in 1993, the Central Intelligence Agency (CIA) issued a report pinpointing ten regions around the world it believed would witness conflicts over one of the basic source of life, water. Additionally, most of them were in the Middle East where the water is blue gold because of its scarcity. Crises have already begun to emerge in the region in the Jordan River Basin between Israel, Palestine, and Jordan; among Egypt, Sudan and Ethiopia over the Nile River; and to some extent between Turkey and Syria over the Tigris and Euphrates Rivers.

Problems about the use of the water resources in the Euphrates-Tigris basin began in the early 1970s with the large-scale Turkish and Syrian irrigation and hydropower projects on the Euphrates, and to a lesser extent on the Tigris River. Since the early 1970s, there have been many important tensions in this region concerning water between these riparian countries. As a result, in 1992, a Pentagon Report identified a water war between Syria and Turkey as one of the first contingencies next to the Jordan River in Middle East.⁹⁷

The mindset of scholars about water scarcity as a sole source of conflict was too narrow as explained in Chapter II. Some of the most interesting, and compelling examples of water-related conflicts were a function of the relationships among social, political, and economic factors, including economic development.⁹⁸ In addition to this, water was used as a political and military weapon in many conflicts caused by other factors than access to the water.

⁹⁷ Ibid, p. 116.

⁹⁸ Environment, Development & Conflict (EDC News) Web page, *Water Conflict Databases*.

Over the past twenty years much has been written and said about the impending water wars that can be expected in semi-arid and arid regions across the globe in the twenty-first century. It was made popular by former UN Secretary General Boutros-Ghali's statement that: "The next war in the Middle East will not be over politics but over water."⁹⁹ On the contrary, precisely because water is so essential to life, even hostile co-riparian countries have historically sought to compromise rather go to war over water, even as disputes have raged on other issues.¹⁰⁰ Indeed, the historical record is predominantly of water acting as a catalyst for cooperation rather than conflict. Whether at the local level or internationally, the vast majority of societies have successfully sought to evolve subtle, often-unwritten, rules for collaboratively managing shared water resources for the common good.¹⁰¹

Parallel to this idea, some writers such as Gleick argue that in the Euphrates and Tigris Rivers' Basin "the need to manage jointly the shared water resources of the region may provide an unprecedented opportunity to move toward an era of cooperation and peace."¹⁰² In next two chapters, I will support Gleick's argument that the conflicting representation of hydro politics in the region is unconvincing, because of five main reasons:

1. The three riparian countries have been engaged in continuous technical consultations and political negotiations over water since the early 1960s. This

⁹⁹ Turton, Moodley and Meissner, *An Analysis of the Role of Virtual Water in Southern Africa in Meeting Water Scarcity*.

¹⁰⁰ Aaron Wolf, "Development and Transboundary Waters: Obstacles and Opportunities." [<http://www.dams.org>]. December 2002.

¹⁰¹ Aaron Wolf, "Indigenous Approaches to Water Conflict Negotiations and Implications for International Waters." [<http://www.transboundarywaters.orst.edu/documents/indigenous>]. December 2002.

shows their effort to avoid water conflict. As a result there are many treaties, which have been signed by three riparian countries that lessen the strength of a water scarcity issue in the politic arena.

2. There are some norms that countries follow while using the basin's water.
3. There are many other reasons that create tension in the region, other than water.
4. Three riparian countries have initiated many projects to capture, store, and redirect freshwater resources in efforts to reduce their vulnerability. These expensive projects increased the probability of cooperation in the basin. Major water problems arise primarily from the mode of water allocation within states rather than to water allocation between states.
5. In the Euphrates–Tigris Basin, none of the riparian countries is facing an imminent water shortage. They purposefully exaggerate the water scarcity that dictates the political behaviors regarding the basin because each riparian country has a self-serving cost-benefit mindset toward the future.

¹⁰² Dolatyar and S. Gray, *Water Politics in the Middle East*, p. 117.

B. WATER-RELATED AGREEMENTS BETWEEN TURKEY, SYRIA AND IRAQ:

Since the disintegration of the Ottoman Empire, the three parties generally pursued a cooperative policy, as mentioned above, to determine the best mechanism for the optimal management of the basin's water. Three riparian countries of the Euphrates and the Tigris Rivers have achieved this with the help of the regulatory framework that they have decided in international water-related agreements. However, because of the ignorance of this regulatory framework by western strategists, they gradually exemplified the lack of cooperation that led them to create scenarios about the water wars in this basin. There are two distinct phases in the growth of water resources management in modern Mesopotamia.¹⁰³

1. The First Phase (after the dissolution of Ottoman Empire to 1960)

During this phase, there are no signs of water conflict; the main approach to water resources management is an engineering approach and water is being used only for irrigation not for energy production. The conclusions of treaties are clear indicators of the dominance of a cooperative mode of relations between three parties.

The first international agreement was in the Franco-British Convention of 1920, according to which the mandatory powers agreed to establish a committee to examine and coordinate the water utilization of the Euphrates and Tigris.¹⁰⁴ There also is a Franco-Turkish agreement in 1921, which is concerned with the upstream utilization of the waters of the Koveik River. Although this river is not related to the Euphrates–Tigris

¹⁰³ Ibid, p. 131.

¹⁰⁴ Ibid, p.133.

Basin, it clearly shows that the three parties have been trying to solve their problem satisfactorily for all concerned. Additionally, this agreement can be used as an example for the upstream-downstream water use problem, which is now the basic issue in the basin.

In 1923, the downstream parties' rights were reflected in the Treaty of Lausanne, which noted that Turkey should confer with Iraq before beginning any activities that may alter the flow of the Euphrates.¹⁰⁵ Additionally, on May 30, 1926 the Friendship and Neighborly Relations Convention was signed between Turkey and Syria, and in 1930 the Treaty of Aleppo referred briefly to Syrian water rights on the Tigris.

After WWII, Iraq and Turkey began exchanging information for providing satisfactory flood. Since there was an extreme seasonal and annual variance, it was recognized that the optimal water management mechanism for the Euphrates-Tigris Rivers had to be implemented in upstream areas for food security and regular flooding. Clearly, if either Turkey or Iraq had perceived water management to be a strategic issue, such a mutual understanding would have been impossible.¹⁰⁶ Subsequently, a treaty of Friendship and Good Neighborly Relations was signed in 1946 between Turkey and Iraq. Additionally, they signed another protocol, together with this treaty. This protocol indicates that Turkey and Iraq perceived the water issue as a technical and engineering matter which required collaboration between them. Its principal objective was the construction of protection and observation posts on Turkish territory to prevent downstream flooding. Accordingly, the cost of all installations, preliminary research

¹⁰⁵ Ibid, p.133.

¹⁰⁶ Ibid, p. 134.

works, and exchange of information were to be borne by Iraq, but the maintenance costs were to be shared by both parties.¹⁰⁷

Although there was not a comprehensive international treaty between the three riparian countries during this period, the fruitful bilateral negotiations and agreements worked well and shaped the general principals regarding downstream countries' rights and water usage for irrigation in the basin. Additionally, these bilateral agreements could serve as a more extensive cooperation between the riparian parties. It must be emphasized, however, that cooperation over broad joint projects was still very limited in this period, because of the regional political obstacles and there was ample water in the basin.

Until mid-1970s Turkey used only 3% of the Euphrates water, Syria near 10%, and Iraq slightly more than 50%.¹⁰⁸ Including the much less-developed water resources of the Tigris River, it is clear that the Euphrates-Tigris system had substantial water left after current demands were met in all riparian countries.¹⁰⁹

2. The Second Phase (1960 and onwards)

The water resources situation in the basin started to change in the 1960s, when all riparian countries initiated their large-scale exploitation projects. Especially during the early 1960s, Turkey and Syria started to draw up plans for large-scale water management projects on Euphrates and, to a lesser extent, on Tigris. Iraq, the main user of water in the basin, saw these projects as a strategic challenge to its position, while perceiving that

¹⁰⁷ Ibid, p. 134.

¹⁰⁸ Nurit Kliot, *Water Resources and Conflict in the Middle East* (London and New York: Routledge, 1994), p. 144.

¹⁰⁹ Dolatyar and Gray, *Water Politics in the Middle East*, p. 135.

Turkey and Syria were determined to raise their shares in the basin. The three parties came together for the first time in the mid-1960s to discuss the possibility of dividing the water resources in the basin.

For negotiation purposes, each country made maximum demands about its share of water in the basin. Since the total of these demands was roughly one-and-a-half times the average flow of the river, no agreement was reached. After this first unsuccessful trilateral attempt, Syria and Iraq carried on bilateral meetings. Iraq wanted a fixed amount of the river's flow. In response to the Iraqi demand, Syria wanted a balanced allocation of the Euphrates water, but in the end no agreement was signed between them.

The failure of the parties to reach a comprehensive agreement caused each party to focus on its own development plans on the portions of the rivers in its territory. Since then, a strategic importance has been given to the water in the basin and Turkey, Syria, and Iraq have had ambitious plans for exploiting it. As a result, observers repeatedly warned that this basin is a time bomb that could explode anytime.

Tensions increased between Iraq and Syria when Syria began to fill the reservoirs of the Tabqa Dam in 1975. In early 1975, Iraq complained that Syria had caused great economic damage to Iraq by reducing the flow of the Euphrates River. With the escalation of the tension, the two regimes traded accusations unrelated to the water issue, and Syria began to openly support Iraqi Kurdish dissidents. Then the two countries closed each other's airline offices and airspace, and sent troops to their borders in April 1975. Through the mediation of Saudi Arabia and the former Soviet Union, the crisis was solved before an armed conflict between the two states ensued.

They made an agreement: Syria would keep 40% of the water and would allow 60% to pass through to Iraq. A dispute or military conflict that involves natural resources is not necessarily a struggle over such resources. It also can be a contest for ideological or hegemonic supremacy in a region, as the 1975 Euphrates crisis between Iraq and Syria illustrated.

In 1980, Turkey and Iraq established the Joint Technical Committee to continue efforts to reach a solution that would satisfy the needs of the riparian states in the basin. Syria entered this group in 1983, and this tripartite committee began its work on the basis of exchanging information about the two rivers. Turkey offered a "Three- Staged Plan for Optimum, Equitable, and Reasonable Utilization of the Basin." This plan was first introduced during the fifth meeting of the Joint Technical Committee in November 1984. This plan proposed three stages:

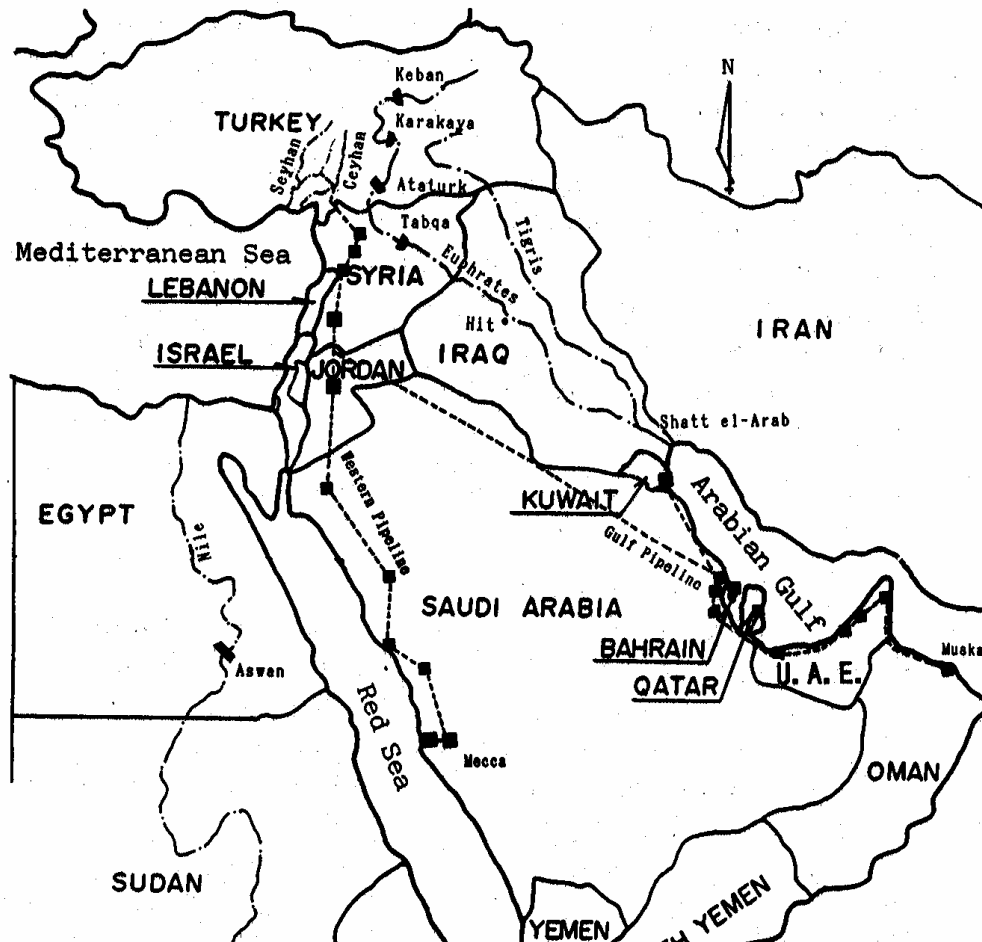
- *First Stage:* It involved "Inventory Studies for Water Resources" where all sides exchanged data on gauging stations, flows and quality of water.
- *Second Stage:* It referred to the "Inventory Studies for Land Resources," where data on land classification, soil conditions for projects that are planned and/or under construction and operation, and drainage conditions are all exchanged among the three riparian states.
- *Third Stage:* The "Evaluation of Water and Land Resources," which includes activities that range from determining optimal irrigation types to determining water consumption and evaluating the economic viability of the planned project.

The Turkish side suggested that an equitable, rational and optimum utilization of water could be achieved through a scientific study which would determine the true water needs of each riparian country. Iraq and Syria have both perceived this proposal as an infringement in their domestic affairs. Furthermore, when Turkey initiated the GAP Project in the mid-1980s, Syria and Iraq saw it as a threat to their economic and strategic goals. As a result the three riparian countries started to give little importance to the Joint Technical Committee and projects could never be initiated. Nevertheless, the role of the Joint Technical Committee should not be underestimated. “Although its meetings are infrequent and appear to have made little substantive progress on the question of water sharing, it is useful channel for communication.”¹¹⁰

In mid 1980s, Turkish Prime Minister, Turgut Ozal offered a “Peace Pipeline” project (see Figure 8) to Middle East countries that would transport water from two western Turkish rivers, the Seyhan and Ceyhan, southward to Syria, Jordan, Saudi Arabia, and the other Gulf States. At the same time the Peace Pipeline project has been trumpeted by the Turkish government as one of the best hopes for lasting peace in the Middle East region because, if fully implemented, it could effectively end regional states’ competition and anxiety over water. It is for this reason that the Turkish government named this project the “Peace Pipeline.”

¹¹⁰ Beschorner, *Water and Instability in the Middle East*, p.42.

Figure 8¹¹¹: Peace Pipeline Scheme



The Peace Pipeline is a technically, financially, and ecologically feasible project. It would provide 8 to 9 million people with up to 400 liters of water per person per day through two pipelines--the Western Pipeline and the Gulf Pipeline (See Figure 8).¹¹² The project, however, has not been so warmly received by several states in the region, partly because of its high estimated cost of \$21 billion and of the projected length of time (ten years) needed for the operation of the pipeline.¹¹³ The most important

¹¹¹ Masahiro Murakami, *Managing Water for Peace in the Middle East: Alternative Strategies* (Hon Kong.: United Nations University Press, 1995), p. 44.

¹¹² Cem Duna, *Turkey's Peace Pipeline* in Joice R. Starr and Daniel C. Stoll, eds., *The Politics of Scarcity: Water in the Middle East* (Boulder: Westview Press, 1988), p.73.

¹¹³ Murakami, *Managing Water for Peace in the Middle East*, p. 45.

concern is that the pipeline, as currently conceived, would pass through a number of downstream countries that do not trust each other. Moreover, the downstream Arab states felt that initiation of this project would mean accepting Turkey as a militarily, politically and hydrologically stronger upstream state in the region. Therefore, The Peace Pipeline project was emphatically rejected by all Arab states. Nevertheless, as Kolars acknowledges, it should not be forgotten that Turkey's proposal of a "Peace Pipeline" was an important cooperative gesture, which may become part of the milieu in which future river management efforts will be forged.¹¹⁴

In 1986 Syrian's Prime Minister visited Turkey and for the first time the Syrians publicly linked security and water saying, "They would not sign a security agreement unless Turkey entered into a formal water agreement."¹¹⁵ In July 1987, Turgut Ozal, the Turkish Prime Minister, visited Damascus. At this meeting, Turkey and Syria signed a Protocol of Economic Cooperation covering a wide range of issues. Water was one of them. Turkey promised to maintain the Euphrates flow of 500 m³/sec across the Syrian border—this was its second retreat from its initial position on the Euphrates since 1964. There are three important articles about Euphrates water in this protocol for guaranteed minimum Euphrates flows in return for Syrian cooperation on border security:

- Article 6: During the filling up period of the Ataturk dam reservoir, and until the final allocation of the waters of the Euphrates among the three riparian countries, the Turkish side undertakes to release a yearly average of more than 500 cubic meters per second at the Turkish–Syrian border. In

¹¹⁴ Dolatyar and Gray, *Water Politics in the Middle East*, p. 156.

¹¹⁵ *Ibid*, p. 155.

cases where the monthly flow falls below the level of 500m³/sec, the Turkish side agrees to make up the difference during the following month.

- Article 7: States that Turkey and Syria should work together with Iraq to allocate Tigris and Euphrates waters within the shortest possible time.
- Article 9: Under this article both states agreed in principal to construct and jointly operate irrigation projects.¹¹⁶

The Protocol was regarded as a temporary arrangement. This commitment was repeatedly confirmed by Turkey, however, and finally, in 1994, an agreement was signed to supply Syria's water requirements in return for Syrian assurance of cooperation on the Kurdish problem.

The second crisis occurred when Turkey finished the Ataturk Dam in 1990. This interrupted the flow of the Euphrates for a month, partly to fill the reservoir. Despite an advanced warning from Turkey, as well as being given more water before and after the temporary cutoff of the river's water, it created high tension over the downstream flow. Syria and Iraq both protested that Turkey now possessed a water weapon that could be used against them. Syria complained that only one out of eight 100-MW turbines was functioning on the Tabqa dam. Iraq claimed that the proposed reduction in the Euphrates flow would damage irrigation schemes and shut down power plants which produced 40% of the countries electricity.¹¹⁷ Turkey, however, argued that Syria would receive a minimum flow of 120 m³/sec from tributaries below the Ataturk dam, as well as additional flows at a rate of 750 m³/sec from 23 November to 13 January (Euphrates

¹¹⁶ Beschoner, *Water and Instability in the Middle East*, p.40.

¹¹⁷ Ibid., p. 41.

discharge into Syria averaged $768\text{m}^3/\text{sec}$ in this period, so during this and the impounding period the average flow would be $509\text{m}^3/\text{sec}$ within the terms of the 1987 protocol).¹¹⁸

The Ataturk Dam crisis caused an unprecedented degree of Syrian-Iraqi unity over the Euphrates. On 16 April 1990, at the Secretariat of the Arab League, which was then located in Tunis, the two states signed an agreement. According to this agreement, whatever the volume of the river that crossed the Turkish-Syrian border was, Syria would keep 42% of the water for itself and would allow 58% of that quantity to cross its border to Iraq. The Syrian-Iraqi united front against Turkey was very short lived and finally collapsed when Syria opposed the Iraqi invasion of Kuwait in August 1990. However, Syria still keeps 42% of the water for itself and allows the remainder to cross to Iraq.

In 1995, a new crisis over water supplies developed between Turkey and Syria. After the credit agreement for the new Birecik Dam on the Euphrates River was reached, Syria immediately lobbied against Turkey both in the Arab League and in Western countries. At the same time, signs of a revival of the Syrian-Iraqi unity on the Euphrates reappeared. They accused Turkey of releasing contaminated water downstream to Syria. Turkey did not take these accusations seriously and reiterated its readiness to discuss all aspects of its projects on the Euphrates and the Tigris rivers. Still no formal agreement has been reached regarding the allocation of water between these three countries.

Nevertheless, consultations are continuing among the riparian countries in the Joint Technical Committee, a body that reflects a cooperative trend among tree riparian countries. This activity continues, and as a critical interchange, has also convinced them

¹¹⁸ Ibid, p.41.

that cooperation over the water issues is not necessary a zero-sum game but could be a win-win situation in which all parties would gain from cooperation.¹¹⁹

Finally, despite some provocative rhetorical statements by some officials in the region and their sensationalist coverage by Western journalists, the most important water projects on the Euphrates and Tigris rivers were carried out peacefully during 1970s and 1980s. Those which are still under construction are of far less significance.¹²⁰ This peaceful development course in the region happened mainly because the overall process of water resource development has been in accordance with previous agreements between the riparian countries--those mentioned

C. THREE RIPARIAN COUNTRIES FOLLOW SOME NORMS, WHILE USING THE BASIN'S WATER

Water as the sum substance of life has affected the course of human history. Its abundance has enabled societies to prosper; its scarcity has caused them to become weak. Water is a central issue on the national agendas of all countries due to its linkages to national interest, demography, agricultural and economic development; and its multiple and varied uses for drinking and irrigation, generation of electricity, sanitation, tourism and leisure activities. The cultural meanings people attach to water, their evaluations of water quality and usage, and their responses to water issues and policies also affect the developments of water usage, because the cultural meanings and values encoded in water are extremely powerful, have proved immensely persistent over time, and continue to exert considerable influence upon all interactions with water.¹²¹ Therefore, this section

¹¹⁹ Dolatyar and Gray, *Water Politics in the Middle East*, p. 156.

¹²⁰ Ibid, p. 139.

¹²¹ Water UK Publications, "Evaluating water: cultural beliefs and values about water quality, use and

will cover some existing national environmental values that Turkey, Syria and Iraq have pursued while following cooperative water management development.

First, the ability of Turkey to shut off the flow of the Euphrates, even temporarily, was noted by political and military strategists at the beginning of the Persian Gulf conflict. In the early days of the war, behind the scenes, there were discussions at the United Nations about using Turkish dams on the Euphrates River to deprive Iraq in response to its invasion of Kuwait. However, no such action was ever taken.

Second, upper stream countries always tried to release more than the minimum amount of water that was regulated by treaties. For example, Turkey has been able to abide fully by the commitment it made in 1987 to release a yearly average of 500 cubic meters a second, summer and winter. In practice the flow often exceeds this considerably. In 1995, for example, the annual average flow was around 830 cubic meters a second. In the first half of 1996, Turkey has been releasing water to Syria at between 1,147 and 1,684 cubic meters a second, far above the amount specified in the 1987 Protocol.¹²² Additionally, Turkey has given 900 cubic meters of water per second on average to Syria over the last three years.

When there was an unusual situation, as happened with the Ataturk Dam crisis, during one month, Turkey cut off the Euphrates water in order to fill its reservoir. However, Turkey warned the down stream countries and wanted them to store more water than usual before the cut off time. Moreover, Turkey released more water than usual before the cut off. Additionally, Syria and Iraq made an agreement about sharing

conservation.” [<http://www.water.org.uk/index.php?cat=3-696>]. April 2003.

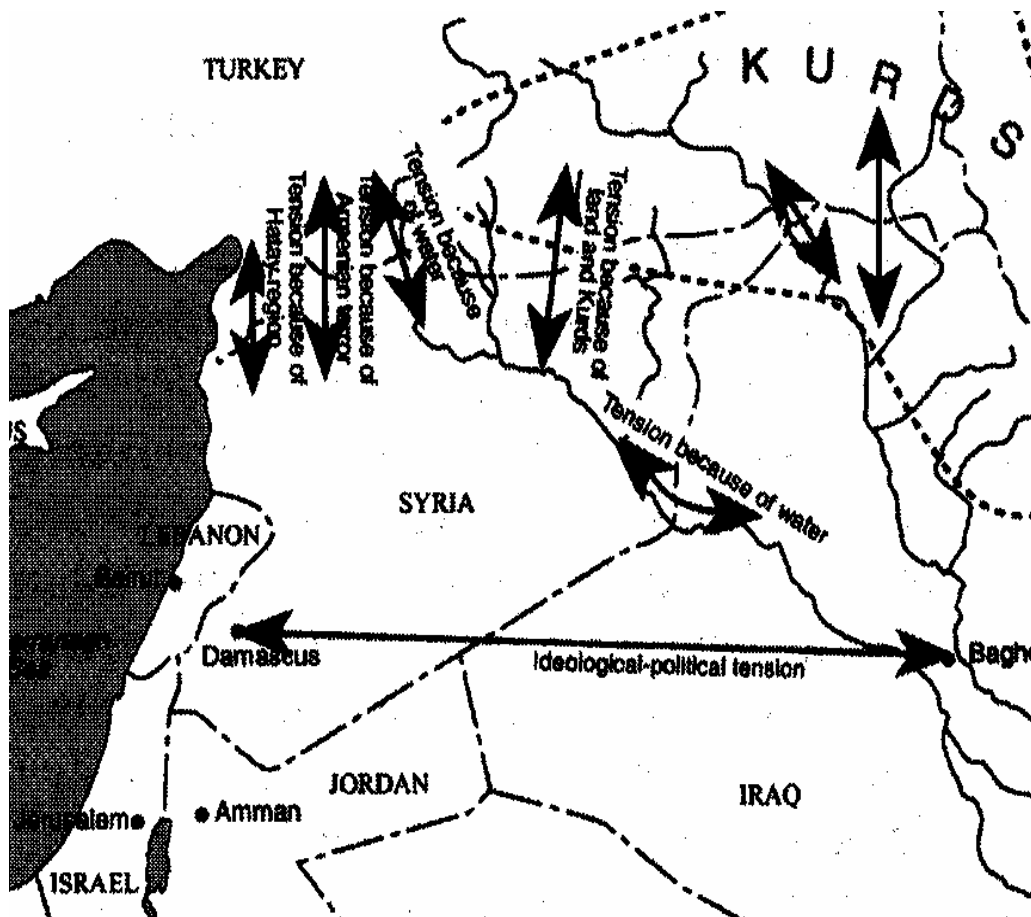
¹²² Republic of Turkey Ministry of Foreign Affairs Home Page, “A Scramble For Water Resources Is Under Way In The Middle East.” [<http://www.mfa.gov.tr/grupa/ac/aci/default.htm>]. December 2002.

water that Turkey was to release to Syrian territory. Whatever the volume of the river that crossed the Turkish-Syrian border was, Syria would keep 42% of the water for itself and would allow the 58% remaining to cross its border to Iraq. This historical information basically shows that upper stream countries never wanted to make down stream countries suffer from water scarcity and always released as much water as they could and did not use the water as a political weapon.

D. OTHER REASONS THAT CREATE TENSION IN THE EUPHRATES – TIGRIS RIVER BASIN

The relationship among the three states is very intricate. They are connected not only by water rights but also by complex historical and political factors (See Figure 9).

Figure 9¹²³: Geopolitics Circles in the Euphrates – Tigris Basin



In order to point out the complex relationships among the three riparian countries, Gleick said:

For 30 years, negotiations over the Euphrates among Turkey, Syria, and Iraq have produced no lasting agreement, in part because the three countries have long been at odds with each other. For example, Syria and Iraq have opposed Turkey over its membership in NATO, and Syria and Turkey opposed Iraqi military actions in the 1970s. In the 1980s, Turkey and Iraq tended to band together against Syrian military aggression, and Turkey and Syria sided with allied forces against Iraq during the Persian Gulf War in the early 1990s.¹²⁴

Parallel to Gleick's idea, Lowi said:

There has been a need for a basin-wide agreement since the mid-1960s... There have been several unsuccessful attempts at promoting a tripartite accord... Syria and Turkey have a simmering territorial dispute concerning the Hatay that dates back to the Mandate period. In recent years, the two countries have been at odds over the Kurdish insurgency movement.¹²⁵

For Syria, the water issue was not only an issue itself; it also was a bargaining chip for negotiations with Turkey about the territorial dispute over the Hatay province. After the dissolution of the Ottoman Empire, France took control of Hatay. The new independent Turkish state started to show its eagerness to take Hatay back since most of the population of Hatay consisted of Turks. Hatay had belonged to Turks for centuries. In 1939, France transferred this region from Syria to Turkey, but Syria wants it back.

Tension between Syria and Turkey is furthermore linked to the Kurds, who live in all three countries. The national security and stability of Turkey are vulnerable to Kurdish sedition and secession, while it is not posing a political threat to Syria due to their small number. Syria used this security leverage to encourage Turkey to take account of the

¹²⁴ Dolatyar and Gray, *Water Politics in the Middle East*, p. 136.

¹²⁵ Ibid, p. 137.

demands of its downstream neighbors, as a senior official of the Turkish Foreign Ministry said:

It is true that Syria does have a habit of working through proxies. It was about 1980 that we started talking seriously about expanding the GAP project, and it was about that time that Ocalan (the leader of PKK) began getting help from Damascus. You could make a connection.¹²⁶

Additionally, the relations between Iraq and Syria are also problematic. The main reason for this growing antagonism was the rivalry between Syria and Iraq. In the 1970s, the two regimes were competitors in the Arab world. They were trying to represent the Arab front separately and trying to dominate each other in the region.

Iraq's security problem is similar to Turkey's regarding the Kurds. More importantly, during the 1980s it was engaged in a war with Iran and later in Gulf War. As a result, water issues with Turkey were not one of its highest priorities. Especially during 1980s and early 1990s, Iraq desperately needed to have a good relationship with Turkey, through whose territory its oil could reach the market. After Iraq invaded Kuwait, however, Turkey took sides in the conflict and joined the coalition formed against Iraq—understandably resulting in tension between the two countries. Once the Gulf War was over, the two states returned to their former relationship.

The balance of power in the region changed with the end of the Iran-Iraq war and particularly in the aftermath of the Gulf War. These developments had significant repercussions for the water dispute. First, the Kurdish problem had grown extremely complicated with the political and military rivalry over northern Iraq and the existence of a power vacuum there. The prospects of increasing attacks by the PKK from that front

¹²⁶ Soffer, *Rivers of Fire*, p. 155.

raised serious security concerns for Turkey. While Turkey's efforts to persuade Syria to not support PKK activities proved futile, Syria began to protest the building of the Birecik dam which started in 1992 as another piece of the GAP project. Despite repeated attempts to address the concerns of all parties with bilateral and trilateral talks, throughout the early 1990s, negotiations remained deadlocked.

What needs to be underlined here is that the post-1984 period marked the escalation of the Kurdish problem and witnessed the internationalization of the Kurdish issue as Syria and Iran began to use the so-called "ethnic card." Hence, the escalation of the water dispute clearly corresponds to the escalation of the Kurdish problem and the increasing use of the "ethnic terror" card by Syria, and later by Iraq, as a bargaining chip. This suggests that the solution to the Kurdish problem is intrinsically linked to the resolution of the water dispute and that finding a solution to one without finding a solution to the other would be very difficult, if not impossible.

These different views clearly show that the water conflict is the result of numerous complex causes, rather than as an autonomous issue. Water is only one of the factors souring relations between Turkey, Syria and Iraq, states traditionally competing for regional leadership.¹²⁷ Others issues to consider are territorial disputes over Hatay between Syria and Turkey, internal problems, domestic political situations of each country, the Kurdish problem and many other matters unrelated to water issues. Therefore, we cannot argue that the lack of cooperation between the riparian countries in

¹²⁷ Beschoner, *Water and Instability in the Middle East*, p.27.

their hydro politics policies is a direct result of apparent or potential water shortages in the region.¹²⁸

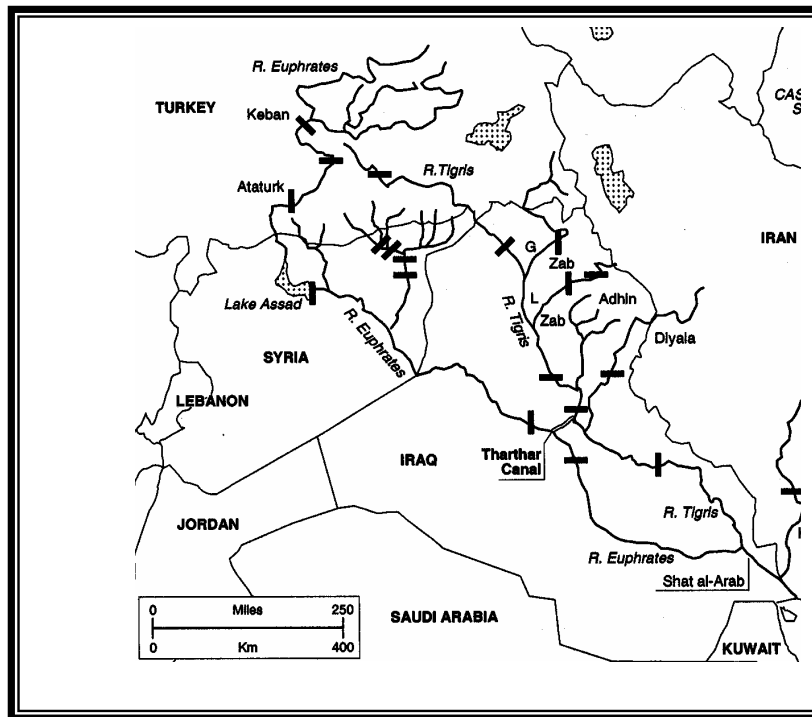
E. WATER PROJECTS IN THE EUPHRATES AND TIGRIS BASIN:

Historically, a unitary authority mostly administered the Euphrates–Tigris basin. For instance, from the sixteenth century to the World War I, the region was under Ottoman rule. However, after the dissolution of the Ottoman Empire, the geographical map of the whole Middle East changed drastically. For the first time hydro politics became an international issue between Turkey, Syria, and Iraq. Turkey, a new independent state, became upper riparian, while Syria and Iraq under French and British mandates became the lower riparian states. Iraq in 1932, and Syria in 1946, established their independence and started to exploit the basin's water for their economic and industrial development.

The water resource situation in the basin started to change in the 1960s when all riparian countries initiated their large-scale exploitation projects. Turkey and Syria started to draw up plans for large-scale water management projects on the Euphrates and, to a lesser extent, on the Tigris (See Figure 10). In the end, the three parties had built-up such a tremendous storage capacity, one far beyond their actual needs, that it reduced their vulnerability to water shortages in the region.

¹²⁸ Dolatyar and Gray, *Water Politics in the Middle East*, p. 138.

Figure 10¹²⁹: Dams of Euphrates – Tigris River Basin



1. Iraq's Dams and Lakes

Iraq was the first of the three countries to seek ways to develop the waters of the Euphrates and Tigris Rivers. In 1977, the on-river dams, all of which are located in the Tigris river basin, had a total capacity of 13.7 km^3 . There was an important program of dam construction in Iraq in the 1980s (See Figure 11). Table 9¹³⁰ shows the large extent of development projects in Iraq, and the storage capacity of these dams.

¹²⁹ Ibid, p. 120.

¹³⁰ Ibid, p. 85.

Figure 11¹³¹: Iraq's Dams and Lakes

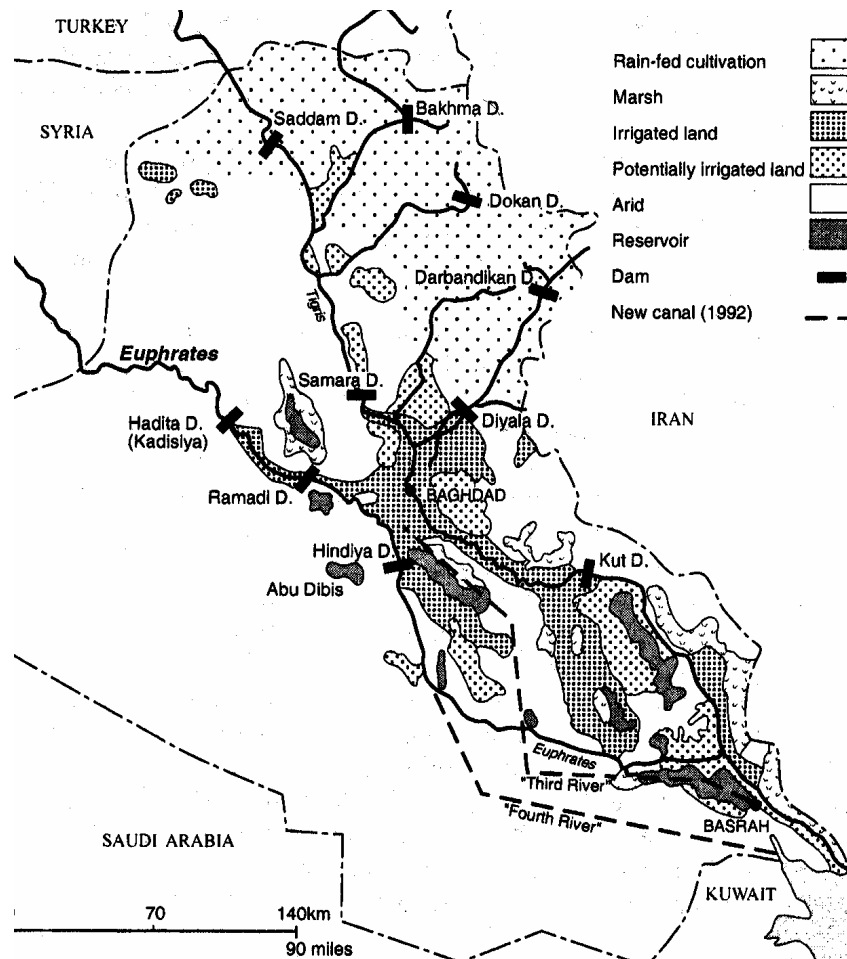


Table – 9: Iraq's Water Projects

Projects	River	Storage capacity	Purpose
Habbaniya Lake	-	32 billion m ³	Flood control, irrigation in the dry season
Abu Dibis Lake and Barrage	E	32 billion m ³	Flood control, irrigation in the dry season

¹³¹ Soffer, *Rivers of Fire*, p. 104.

Hindiya Barrage	E	-	Raising water to feed the Hilla, Musaib, Elhosaniye, and Beni Hassen canals
Diyala Barrage	Diyala	-	Divrsion of water to irrigation canals
Kut Barrage	T	-	Diversion of water to shatt el Jaref
Lake Tharthar	T	30 billion m ³	To prevents floods in Tigris, transfer from Tigris to Euphrates
Ramadi Barrage	E	-	Flood control and direct water to Habbaniye lake
Samara Barrage	T	-	Diversion of water to Lake Tharthar
Falluja Barrage	E	-	Diversion of water to irrigation canals
Dokan Dam	Little Zab	0.63 – 0.75 billion m ³	400 MW hydropower, water storage, and irrigation
Darbandikhan Dam	Diyala	5 billion m ³	Hydropower, flood control, and storage
Kadisiya Dam	E	17 billion m ³	600MW hydropower, storage, and irrigation

Saddam Dam	T	30 billion m ³	750 MW hydropower, storage, and irrigation
Batama Dam	Little Zab	-	Hydropower and storage

By the mid 1960s, Iraq was irrigating over five times as much land as Syria and nearly ten times as much as Turkey.¹³² In order to continue its efforts to use the basin's water more efficiently, Iraq began constructing the "Third River" (see Figure 12¹³³) between the Euphrates and Tigris in the 1960s. In the late 1970s, as part of the effort to prevent flood damage, Iraq built another canal to divert excess water from the Tigris into Lake Thartar. Since then, Iraq has continued to build other similar canals linking two rivers with Lake Thartar, Lake Habbaniya, and Lake Abu Dibis to prevent flooding in the low lying areas of Baghdad.

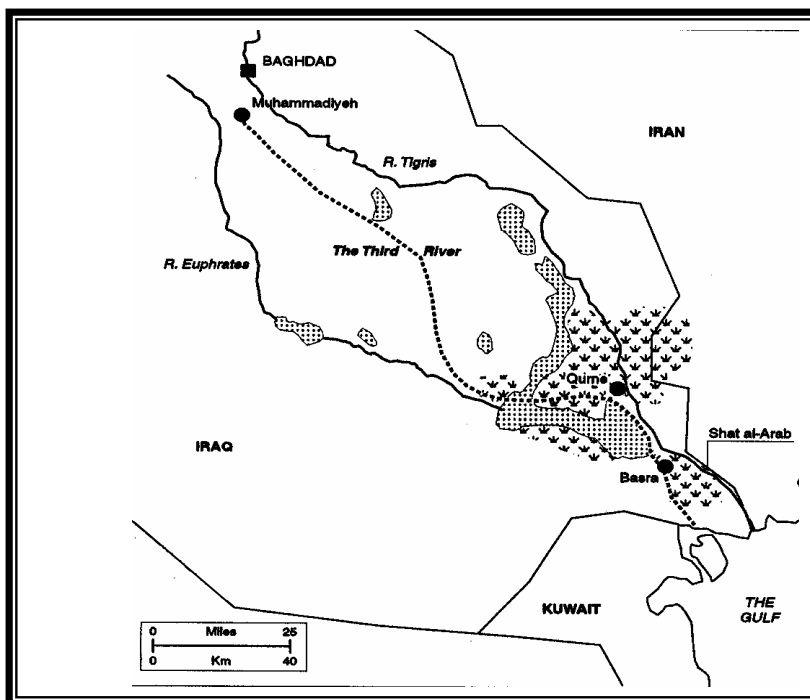


Figure 12: Third River: In December 1992, the Iraqis celebrated the inauguration of a 565 km-long navigable canal, which flows midway between the Euphrates and Tigris –

¹³² Erberhard Kienle, *Bath v. Bath: The Conflict between Syria and Iraq, 1968-1989* (London: Tauris, 1990), p. 93.

One of the striking factors about the dam and lake system of Iraq is the volume of storage capacity (See Table - 9). The total on-river storage capacities for the Tigris will thus amount to 42 km³, and 8.2 km³ for the Euphrates River. Additionally, at present, the Al-Adom dam on the Tigris River, with the capacity of 3.8 km³, is under construction.¹³⁴ With all the water systems that Iraq has, water can be transferred via canals from the Tigris to the Euphrates to regulate the growing water shortage that has developed due to the development projects of Syria and Turkey.¹³⁵

2. Syria's Dams and Lakes:

Syria began exploiting the Euphrates' water for irrigation and hydropower in the early 1960s. Syria, with the help of the Soviet Union, built the Tabqa Dam on the Euphrates in 1973. The Bath dam, which was completed in 1986, was the second Syrian project after Tabqa Dam on the Euphrates. The third project, the Tishreen Dam, which is a concrete dam on the Euphrates River at the end of Al-Assad Lake, was built between 1994 and 1997. Table 10 shows each dam's storage capacities and their building purposes.

¹³³ Dolatyar and Gray, *Water Politics in the Middle East*, p. 159.

¹³⁴ Salih Korkutan, *The Sources of Conflict in the Euphrates-Tigris Basin*, p. 66.

¹³⁵ Soffer, *Rivers of Fire*, p. 84.

Table 10¹³⁶: Syria's Water Projects on the Euphrates River

Projects	Storage capacity	Purpose
Tabqa Dam	12 billion m ³	800 MW hydropower, irrigation
Bath Dam	0.9 billion m ³	81 MW hydropower, storage and irrigation
Tshreen Dam	1.3 billion m ³	630 MW hydropower and control

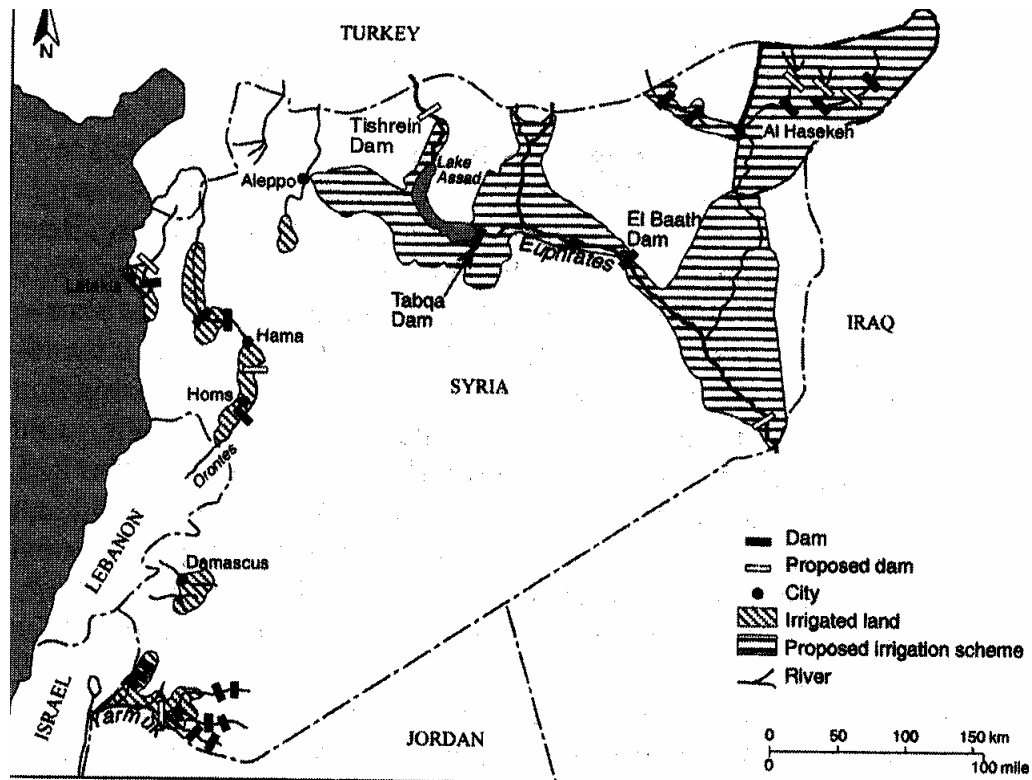
There are 141 dams in Syria with a total storage capacity of 15.8 km³ (See Figure 13).¹³⁷ The largest dam is located at Al-Tabka on the Euphrates. It forms the Al-Assad Lake with a storage capacity of 11.2 km³. Medium-sized dams include the Al-Rastan (225 million m³), the Mouhardeh (50 million m³) and the Taldo (15.5 million m³). There are some 20 dams classified as small, the largest of which is the Dara'a, with a storage capacity of 15 million m³. The majority of these dams are located near Homs and Hama. Apart from the Al-Assad Lake, there are five lakes in Syria, the largest being Lake Jabboul, near Aleppo, with a surface area of about 239 km². Lake Qattineh, near Homs, is the main perennial lake in Syria.¹³⁸

¹³⁶ Ibid, p. 86.

¹³⁷ Ibid, p. 97.

¹³⁸ Aquastat, FAO's Information System on Water and Agriculture, "Syria: Dams and Lakes." [<http://www.fao.org/ag/agl/aglw/aquastat/countries/syria/index.stm>]. April 2003.

Figure 13¹³⁹: Syria's Water Projects



3. Turkey's Dams and Lakes:

Water resource studies were initiated in Turkey in the early 1930s, and the need for electric energy emerged as the most urgent priority, along with Turkey's pursuit of an ambitious economic and agricultural development program. In 1936, Turkey established the Electric Works Studies Agency to solve energy problem. Then in 1954, the State Hydrolic Works Agency was established when new requirements emerged through the studies. Though the government periodically attempted to secure funds for the development projects in the Euphrates–Tigris Basin, in the face of more pressing

¹³⁹ Soffer, *Rivers of Fire*, p. 97.

economic priorities the idea of developing these two rivers did not become politically viable until the 1960s.¹⁴⁰

Turkey began constructing the Keban Dam on the Euphrates in the mid-1960s and finished the project in 1974. This was the first major dam on the Euphrates in Turkey. The second dam on Euphrates, the Karakaya Dam, was completed in 1988. This was the first dam built as part of the implementation of the Southeastern Anatolia Project (GAP, Turkish acronym).

The GAP is a large-scale, multi-sectorial regional development project with major implications for the region. It is one of the largest river basin development projects in the world and the largest of its kind ever undertaken by Turkey. The idea for the project began around 1963 as part of the regular five-year national development plan. In 1977, all the projects planned for the Southeast region of Turkey were combined under this project.

The GAP project consumes 6.5% of the national budget with 1.5 million dollars being spent on the project daily.¹⁴¹ To emphasize the importance of the GAP Project, Dennis Avery, who now heads the Global Food Policy Institute in the USA, said that (While referring to the California Central Valley, an area of irrigated land, which is 25% smaller than the GAP region and which now produces more than \$12 billion in primary crop values annually.):

"We are on the eve of the greatest farming opportunity in history and it's precisely at that moment that Turkey is creating a new California."¹⁴²

¹⁴⁰ Ali Carkoglu and Mine Ender, *Domestic Concerns and the Water Conflict over the Euphrates – Tigris River Basin* Middle Eastern Studies 37, no.1(January 2001), p. 7.

¹⁴¹ John F. Kollars and William A. Mitchell, *The Euphrates River and the Southeast Anatolia Project* (Illinois: Illinois University Press, 1991), p. 260.

¹⁴² Republic of Turkey, Turkish Embassy Home Page, London, United Kingdom, "Benefits of Gap."

The GAP project has short-term as well as long-term objectives. The main objectives of the GAP project as a regional development idea are as follows:

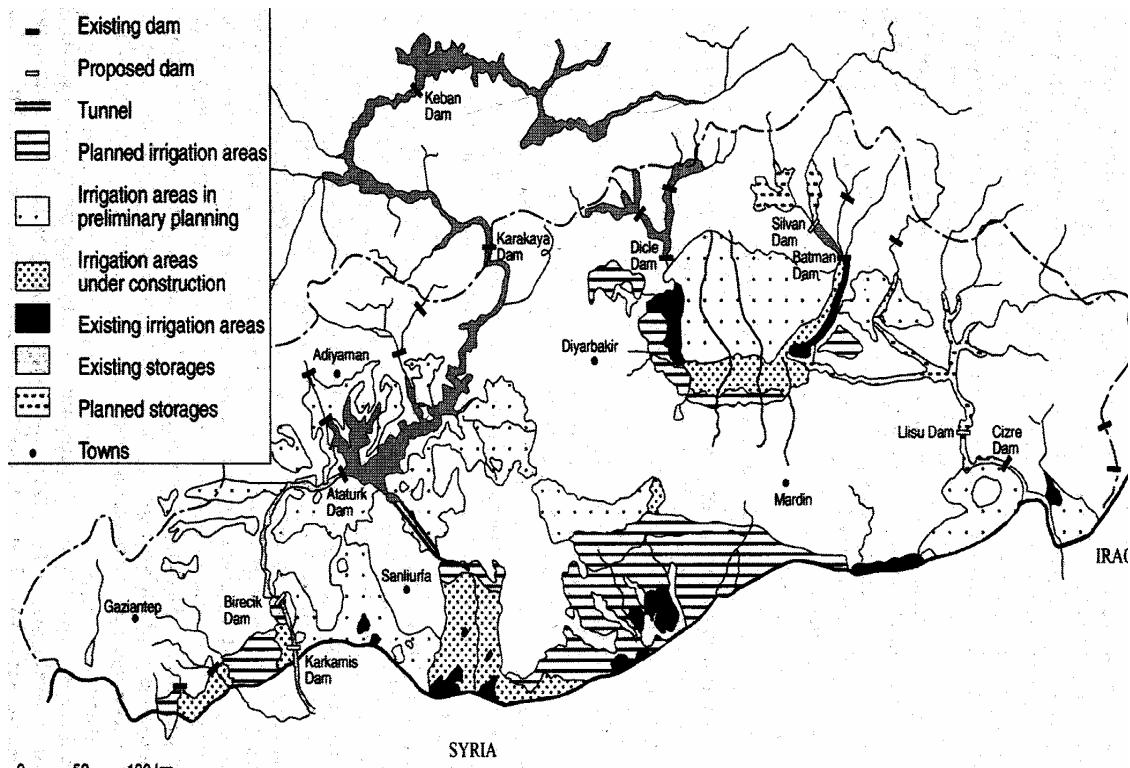
- To develop all the land and water resources in the region in order to revive regional economies;
- To increase employment by accelerating land development and expanding agriculture;
- To improve the gap between the Southeastern Anatolia Region and other regions by increasing production and welfare levels;
- To complete the infrastructure projects in major cities to improve the quality of life and to attract industry and investment;
- To organize the economic and physical infrastructure in rural areas by using the resources in the most useful ways and to direct urban growth in desired directions; and,
- To contribute to the national objectives of sustained economic growth and export promotion by using the region's resources.¹⁴³

The GAP (See Figure 14) project consists of 13 major irrigation and hydropower plants on both Euphrates and Tigris Rivers, seven in the lower Euphrates sub-basin and six in the Tigris sub-basin. The development region covers 28,520 square miles (9.5 percent of the total area of Turkey), including six regions (Siirt, Diyarbakir, Mardin, Adiyaman, Urfa, and Gaziantep). The project envisages the construction of 22 dams and 19 hydroelectric power plants on the Euphrates and Tigris Rivers and their tributaries.

[http://www.turkishembassy-london.com/new_page_43.htm]. September 2002.

¹⁴³ Republic of Turkey/GAP Regional Development Administration, "GAP Industrialization Strategy." [[http://web.macam.ac.il/~arnon/IntME/water/TURKEY'S%20 APPROACH%202.htm](http://web.macam.ac.il/~arnon/IntME/water/TURKEY'S%20APPROACH%202.htm)]. April 2003.

Figure 14¹⁴⁴: The Southeastern Anatolia Project (GAP)



a. Principal Water Projects of Turkey in the Euphrates Basin¹⁴⁵

The Keban Dam: The dam is of large dimensions; about 3,600 feet long and about 656 feet high. The lake's carrying capacity, with a surface area of 262 square miles, is about 30 billions m^3 . The dam is used for electricity production alone and not for irrigation. It produces about 1,240 megawatts of electricity, but is capable of producing double that figure.

The Karakaya Dam: The dam is intended for electricity production only and its production capacity is 1,800 megawatts.

¹⁴⁴ Soffer, *Rivers of Fire*, p. 90.

¹⁴⁵ Ibid, pp. 91 – 94.

The Ataturk Dam: This is the largest and most costly of the GAP dams. It has been described as the fifth largest dam in the world. It is multipurpose and intended for irrigation and electricity. Its production capacity is 2,400 megawatts of electricity and irrigation of 5 million hectares. The dam's lake stores about 48.4 billion m³ of water with a surface area of 338 square miles.

Sanliurfa Tunnels: These are two tunnels to direct the water from the Ataturk Dam to the irrigation region. Each tunnel is 25 feet in diameter and 15 miles long. Together, they discharge 328 m³ of water per second. The flowing water produces 50 megawatts of electricity at the Sanliurfa power station.

The Birecik and Karakamish Dams: These dams are intended for electricity production and for irrigating land close to Syrian border. The carrying capacity of the dams is 47.6 billion m³ of water.

b. Turkey's Water Projects on the Tigris¹⁴⁶

The Dicle and Krallizi Dams: Two dams are still under construction. The Kiralkizi Dam is intended to produce 90 megawatts of electricity, and the Dicle Dam 110 megawatts. The Dicle Dam will also be used to irrigate 0.12 million hectares.

The Batman Dam: This planned dam will generate 185 megawatts of electricity and irrigate 37, 744 hectares.

The Garzan Dam: This dam will be located on the Garzan tributary and should produce 90 megawatts of electricity and irrigate 60,000 hectares of land.

¹⁴⁶ Ibid, pp. 95 – 96.

The Ilisu Dam: This large dam is intended to produce about 1,200 megawatts of electricity. It is also intended for irrigation.

The Cizre Dam: It is intended to produce 240 megawatts of electricity and to irrigate 0.12 million hectares of land.

By the end of 1991, the construction of 164 large dams, mostly rock-filled or earth-filled dams, and 765 small dams had been completed and put into service for water supply, irrigation, hydropower and flood control; as a result total dam capacity is about 206 km³ in Turkey. However, with the new projects that have been initiated under GAP, Turkey's storage capacity will be enormous.

Exploitation of water resources typically requires expensive—and vulnerable—civil engineering systems such as dams and pipelines. Large dams, like nuclear power plants, are potential weapons in the hands of an enemy. This creates a mutual hostage situation, which greatly reduces the incentives for states' sources to employ violence to resolve conflicts. Furthermore, there is evidence that the development of water resources by antagonistic neighbors creates a network of common interest.”¹⁴⁷ As a result, this creates a mutual hostage situation in which all parties are at risk, if there is tension in the region since each of the states have very expensive but vulnerable water projects. It also strengthens the probability of the cooperation in the basin.

Since 1960s, using the basin's water for producing electricity gained more importance. Since hydropower production is a non-consumptive water activity, more power generation minimizes the political and environmental impact on downstream

¹⁴⁷ Dolatyar and Gray, *Water Politics in the Middle East*, p. 20.

countries, because in order to produce hydropower, upstream countries let more water flow to the downstream countries' territories.

On the other hand, as explained in Chapter III, the discharge of the Euphrates and Tigris Rivers is subject to extreme fluctuations, both seasonally and annually. As far as agriculture is concerned, the rivers' seasonal and annual fluctuation is very unfavorable. This means that considerable engineering capacity and efficient water management systems need to be built in order to control the rivers' flow effectively. Although one function of upstream dam building—water abstraction—may cause tension, it is not only beneficial but also necessary to the downstream state. For instance, 1988–1989 were the driest years of the last 50 years; the deficiency in the natural flow was compensated by water from the Keban and Karakaya reservoirs protecting Syria and Iraq from the dire consequence of the drought.¹⁴⁸

Finally, it should be noted that the overall process of water resource development in the basin during the last three decades has been in accordance with previous agreements signed by the three riparian states in order to regulate the flow. The construction of enormous water storage capacity in Turkey, Syria, and Iraq has partially enhanced their sense of water security, while increasing their vulnerability to their expensive water projects.

F. IN THE EUPHRATES–TIGRIS BASIN, NONE OF THE RIPARIAN COUNTRIES IS FACING AN IMMINENT WATER SHORTAGE

There are many facts that prove that none of the riparian countries is facing an imminent water shortage. For example, Turkey has been able to abide fully by the

¹⁴⁸ Soffer, *Rivers of Fire*, p. 140.

commitment it made in 1987 to release a yearly average of 500 cubic meters a second, summer and winter. In practice the flow often exceeds this considerably. In 1995, for example, the annual average flow was around 830 cubic meters a second. In the first half of 1996, Turkey has been releasing water to Syria at between 1,147 and 1,684 cubic meters a second, far above the amount specified in the 1987 Protocol¹⁴⁹. Additionally, Turkey provided 900 cubic meters of water per second on average to Syria over the last three years.

If Turkey, Syria and Iraq complete their own projects for using the Euphrates–Tigris basin’s water effectively in order to support their economical and agricultural development, it will be necessary to calculate whether a shortage of water in Euphrates and Tigris may be expected. Before making the calculation, it should be emphasized that Turkey and Iraq have ability to balance the shortfall in one river at the expense of the other.

Table 11¹⁵⁰ shows that until 2020, there will be a surplus of water in the Euphrates and Tigris. There may be a shortage of water in the Euphrates in 2020s, but Tigris water will be able to compensate for it. After 2030s, however, a situation may arise in which there will be a shortage of water in the Euphrates and Tigris.

¹⁴⁹ Republic of Turkey Ministry of Foreign Affairs Home Page, *A Scramble For Water Resources Is Under Way In The Middle East*.

¹⁵⁰ Soffer, *Rivers of Fire*, p. 106.

Table 11:¹⁵¹ Demand and Supply of Water in Euphrates – Tigris Basin (billion m³)

	2010	2020	2030
Euphrates			
Turkey	10	12	15
Syria	6	8	10
Iraq	14-17	14-17	14-17
Total Demand	30-33	34-37	39-42
Supply	30	30	30
Balance	-3	-4 -7	-9 –12
Tigris			
Turkey	2	3	5
Syria	0.2	0.3	0.4
Iraq	32-38	32-38	32-38
Total Demand	34-40	35-41	37-44
Supply	50	50	50
Balance	16-10	15-9	13-6

¹⁵¹ Iraqi demands based on 1980s use. The table is based on the author's interpretation from available data and the progress of the development projects.

Euphrates+Tigris			
Turkey	12	15	20
Syria	6.2	8.3	10.4
Iraq	46-55	46-55	46-55
Total Demand	64.2-73.2	69.3-78.3	76.4-85.4
Supply	80	80	80
Balance	+15.8 +6.8	+10.7 +1.7	+3.6 -5.4

Finally, the annual discharge of the rivers has been more than enough for the three riparian countries' needs. However, they have purposefully exaggerated the water scarcity that dictates the political behaviors of those in the basin, because of each riparian country's self-serving cost-benefit mindset regarding the future. Although the extreme seasonal and annual fluctuations of the twin rivers have always been a great challenge to parties, it has led them towards collective cooperation to solve their problems and control the water resources of the basin due to the basins abundance water.

V – CONCLUSION AND RECOMENDATIONS

A. CONCLUSION

Most recent studies and reports indicate that there is a significant risk of imminent conflicts and wars over water in the Middle East because of water scarcity. It was made popular by former UN Secretary General Boutros-Ghali's statement that, "The next war in the Middle East will not be over politics but over water."¹⁵² Apart from exaggerating the scarcity of water resources and the likelihood of war, the major flaw of this literature is that it is more problem-orientated. Additionally, the mindset of those who follow this literature regarding water scarcity as a sole source of conflict was too narrow, and that some of the most interesting, and compelling examples of water-related conflicts were a function of the relationships among social, political, and economic factors, including economic development.¹⁵³

Contrary to what is mentioned above about water wars, precisely because water is so essential to life, even hostile co-riparian countries have historically sought to compromise rather go to war over water, even as disputes have raged on other issues.¹⁵⁴ Indeed, the historical record is predominantly of water acting as a catalyst for cooperation rather than conflict. Parallel to this idea, in this thesis, I explained that the conflicting representation of hydro politics in the Euphrates–Tigris basin is unconvincing, for five main reasons:

¹⁵² Turton, Moodley and Meissner, *An Analysis of the Role of Virtual Water in Southern Africa in Meeting Water Scarcity*.

¹⁵³ Environment, Development & Conflict (EDC News) Web page, *Water Conflict Databases*.

¹⁵⁴ Wolf, *Development and Transboundary Waters: Obstacles and Opportunities*.

First and most importantly, in Euphrates–Tigris Basin, none of the riparian countries is facing an imminent water shortage. Despite some sensational political rhetoric and pessimist predictions, water scarcity in the Euphrates and Tigris Basin has never been as acute as it has been in other water basins in the Middle East. The basin's riparian countries purposefully exaggerate the water scarcity that dictates their political behaviors regarding the basin because of their self-serving cost-benefit mindset relative to the future. The fact is that the real demand for water has not yet exceeded supply in the basin.

Second, it is remarkable that the three riparian countries have been engaged in continuous technical consultations and political negotiations over water since the early 1960s; this shows their effort to avoid water conflict. In the process of their diplomatic exchange, all parties have understood that the international water resources cannot be monopolized or subjected to the control of a single riparian state. This active, continuous, and critical interchange has also convinced them that cooperation over the water issue is not necessarily a zero-sum game, but could be a win-win situation in which all parties would gain from cooperation.¹⁵⁵ As a result there are many treaties which have been signed by the three riparian countries that lessen the strength of water scarcity issues in the politic arena. Additionally, despite the political disturbances in the region, as Issam El Chalabi and Farouk Majzoub note, these bilateral and trilateral agreements generally worked well and could serve as basis for a more extensive cooperation between the riparian countries.¹⁵⁶

¹⁵⁵ Dolatyar and Gray, *Water Politics in the Middle East*, p. 156.

¹⁵⁶ Ibid. p. 135.

Since every theory which claims water conflict in the basin shows Turkey's water development projects as one of the main reasons for tension in the basin, it should be noted that Turkey has demonstrated its eagerness to find ways of reaching a basis for cooperating with Syria and Iraq to use the Euphrates and Tigris Rivers fairly. For example, at the January 1992 Moscow multilateral talks, Foreign Minister Hikmet Cetin stated:

Concerning water, we are aware of its importance and its regional implications. We see it as an integral element of overall regional cooperation. We are ready to cooperate in this respect.

The main Turkish argument has been that the dependency of the downstream states on the Euphrates and Tigris Rivers has not caused Turkey to use them irrationally or unreasonably or at the cost of neighboring countries. The Turkish government has repeatedly announced that Turkey has never had any intention of using its upper stream position as political leverage as feared by the Arab states.

Third, the construction of enormous water storage capacity in Syria, Iraq and Turkey has partially enhanced their sense of water security. Projects which have been implemented by Turkey, Syria and Iraq for flood control, irrigation and electricity generation have not caused significant ecological consequences. The riparian countries have harmoniously managed to tackle these water problems through negotiations and cooperative measures. Additionally, these expensive projects increased the probability of cooperation in the basin because of their vulnerability. More importantly, the major water problems arise primarily from the mode of water allocation within states rather than to water allocation between states.

Fourth, the so-called water conflict in the Euphrates-Tigris basin is not an autonomous issue, but is the result of numerous causes which have nothing to do with ‘water scarcity’ in the proper sense. There are many other factors which cause tension in the region, such as territorial disputes over Hatay between Syria and Turkey; internal problems, domestic political situations in each country; the Kurdish problem; Syrian support to a Kurdish separatist terrorist organization (PKK), and many other issues unrelated to water issues. Despite the territorial disputes and general atmosphere of tension in the region, it is remarkable that riparian countries have shown great efforts to avoid conflict and have been engaged in continuous technical consultation and political negotiations over water since the early 1960s. This progressive process has obviously undermined the likelihood of conflict between states.

Fifth, there are some norms that countries follow while using the basin’s water. The historical data given in Chapter IV basically proves that upper stream countries never wanted to make down stream countries suffer from water scarcity and always released as much water as they could, while not using the water as a political weapon.

Finally, in contrast to what is conventionally believed, first, water resources have never been the cause of military conflict in the Euphrates-Tigris Basin. It is important to state here that the main aim of this study is to establish that the conventional wisdom of “water war in the Euphrates–Tigris River Basin” has been exaggerated by pessimistic commentators who seldom attempt to clarify precisely what water-related causes of conflict are and what they are not.

B. RECOMENDATIONS:

It is possible to recognize evidence of water strategies stretching over more than six millennia in the Euphrates-Tigris basin. In this thesis, however, I mainly focused on the era from the dissolution of the Ottoman Empire onwards. There are two distinct phases in the growth of water resource management in modern Mesopotamia as mentioned in Chapter IV. Since the disintegration of the Ottoman Empire, the three parties generally pursued a cooperative policy in order to determine the best mechanism for optimal management of the basin's water. The three riparian countries of the Euphrates-Tigris Rivers have achieved this with the help of the regulatory framework that they have decided in international water-related agreements.

During the first phase—after the dissolution of Ottoman Empire to the 1960s—there are no signs of water conflict; the main approach to water resource management is an engineering approach and water is used only for irrigation not for energy production. The water resource situation in the basin started to change in the 1960s, when all riparian countries initiated their large-scale exploitation projects. During the second phase -from the 1960s onward- a strategic importance has been given to the water in the basin and Turkey, Syria, and Iraq have had ambitious plans for exploiting the basin's water not only for irrigation but also for generating electricity. For the first time, there was an attempt to store water from the time it was generated by nature to the time it was needed.

Through the 60 year period, from 1960 to the end of 2020, it seems that there will be one important change from excess water availability to a situation in which there may not be enough water to meet the planned requirements of the Euphrates-Tigris basin's

riparian states. Therefore, from 2020 onwards we can foresee a new phase in water management, characterized by growing water shortages and decreased quality.

It is impossible to estimate the impact of this decline in water volume and quality on the basin's countries at the present time. Nevertheless, with continued population growth and each country's agricultural and industrial development, it is obvious that new emphasis will be given to the value of water at the next phase. The critical factor will be the maximum economic productivity of the utilization of a cubic meter of water. Under these considerations, in order to maximize the economic productivity of water utilization and prevent the future conflicts:

- Turkey, Syria and Iraq should design a water pact to regulate the allocation of trans-boundary water resources. Each country's quota should be determined by its population and by its contribution to the formation of water resources. As a recent agreement illustrates, whatever the volume of the water that crosses the Turkish-Syrian border is, Syria keeps 42% of the water for itself and allows 58% of that quantity to cross its border to Iraq; Turkey releases a yearly average of 500 cubic meters a second.
- Maximum opportunities should be created for water management institutions to cooperate at the regional level rather than setting up new interstate entities. If each country creates new national institutions simply to highlight its independence, no practical results will be achieved.
- Regional cooperation in agriculture should be encouraged. This measure would make it possible to significantly reduce water consumption since most of the basin's water is used for irrigation.

- Special funds should be allocated by each country to finance the maintenance and operation of the region's water management system.
- Market regulation in water management should be encouraged.
- All countries should maximize the use of water-efficient technologies, since any water waste is unbearable in the basin.

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